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THE DETERMINANTS OF POLITICAL TRANSITIONS: AN EMPIRICAL TEST OF THE YOUTH BULGE THEORY

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Introduction

The development of a global market calls into question the endurance of the current world political order and organization. The progressive opening up of many market economies, the drop in transportation costs, the expansion of the financial sector and the advent of internet and e-commerce have gradually contributed to overcome the trade, economic, political and social barriers present among extremely different cultures and countries. The globalization phenomenon not only has implied the appearance of new international entities defending the interests of groups of countries, like the WTO or the European Union, but has also coincided with a transformation of the global political order. The third wave of democratizations, as defined by Samuel P. Huntington, has been characterized by an unprecedented and striking emergence of new democracies all over the world, starting from the end of the 20th century. Such a trend appears to have halted in the aftermath of the 9/11 events, but the recent episodes of political turmoil in the Middle-East North-Africa region seem to constitute a new surge of political transitions, that some scholars recognize as a fourth wave of democratizations. The analysis of the occurrence, the timing and determinants of regime changes have led researchers to start thinking about these events as parts of historical cycles. A question that naturally arises is what shapes the relationship between political and economic business cycles and what are the determinants of democracy.

The study of the conditions for a democracy to be established is characterized by a problem of joint endogeneity. It is generally hard to distinguish between causes and consequences of democratization, because it is a long process which involves a profound change in all aspects of social and political life. Furthermore, the attempt of identifying factors that have contributed recurrently for a wide variety of cases clashes with the fact that every political transition is different from the other and peculiar in its own right. As there is a great heterogeneity both across countries and over time, the idea of waves allows to delimit temporally and geographically each episode of this phenomenon.

The aim of this work is threefold. Firstly, it offers the chance to have a general overview of the theories on political transitions. Secondly, it provides a description of the Arab Spring in two countries, Egypt and Tunisia, which represents an interesting and relatively unexplored field of research, even though the uncertain future prospects hinder any objective assessment of its success and long run effects. These first two parts are functional and preliminary to the econometric test performed in the final chapter, the main goal of this analysis.

As a consequence, the thesis is organized in three chapters. The first one provides an extensive but still incomplete review of the literature concerning the determinants of democracy and political transitions. The first section is devoted to the theoretical contributions, while the second one presents the main empirical analyses. Two different approaches can be identified in this literature: a structural one, emphasizing the macro trends affecting the establishment of a democracy, and a more micro oriented approach, which focuses on the different incentives and actions of the different players involved in the democratization process. Some of the empirical works examining the determinants of democracy test cross-country regressions and study the impact of income. Different conclusions are obtained when alternative econometric strategies are applied. A further contribution is presented, testing the link between demographic and democratic transitions. It will constitute an important reference for the analysis performed in the final part of this thesis.

The second chapter investigates the socio-economic background characterizing the outbreak of the Arab Spring in two countries, Tunisia and Egypt. The Arab Spring or Awakening is the incredible wave of upheavals that shook the old political order of the Middle-East North-Africa region during 2010 and 2011 calling for the dismantlement of repressive, scarcely democratic rules and that obtained the attention of world media for several months. The consequences of this exceptional movement have been diverse among the different countries involved in the uprisings. The long-standing autocratic regimes of Mubarak in Egypt and of Ben Ali in Tunisia have inevitably fallen under the

overwhelming pressure exerted by a substantially united front, which gained also the support of the army. The situation in Libya was different: the civil conflict originated by the clash of the pro-Gheddafi faction and the rebel forces was only resolved after the intervention of an international coalition. The civil war in Syria is ongoing and far from its conclusion. The anti-government protests in Yemen forced Ali Abdullah Saleh to step down from the presidency but his place was taken by the Vice President, a member of the same political party.

Whether this surge of massive protests will have a permanent effect on the political system and eventually lead to more democratic institutions is still not clear. Also in Tunisia and Egypt, those countries which were more deeply affected by the wind of change, the political transformation process seems to be slow, far from completion and characterized by a high degree of instability and uncertainty. Despite the different paths followed by these countries in the Middle-East North Africa region, we can recognize some common features that made the Arab Spring an unprecedented event in world history.

Among such peculiar characteristics, a special role was played by internet and social networks such as Twitter and Facebook, which provided useful and powerful organization tools for the protestors. Unsurprisingly, during the upheavals many governments desperately shut down internet access to prevent protestors to communicate and bloggers and journalists, the heroes of the revolution, to report the news.

Another element, which has been recognized by commentators of the Arab Spring as an important trigger of the revolutions, is population age composition. All the populations of the countries involved in this wave of political transformations show a similar structure, often characterized by the presence of a youth bulge. The final chapter of this work, which constitutes the core and the main contribution of this thesis, offers an empirical test of the youth bulge theory on a sample of 160 countries from 1950 to 2010. The hypothesis tested is based on the idea that countries where the 15-29 cohorts are extremely dense, are more vulnerable to episodes of political violence and instability.

A simple linear regression analysis is performed, allowing for the presence of country and time fixed effects, to examine the impact of age structure on political instability, beyond the scope of the Arab Spring phenomenon.

Part I

A Literature Review

A first glance at the literature concerning the interplay between economic growth and democracy reveals a relative lack of theoretical contributions by economists. Nevertheless works from the fields of political science and sociology represent a precious resource and offer important insights to identify the critical issues. These will be the starting point of my review. Only after having summarized the most influential positions in the theoretical literature, I will briefly present the main empirical methodologies employed. In this regard, some publications by economists constitute the material to draw upon and the main reference for any kind of econometric analysis.

1 Theories on the emergence of democracy

1.1 The modernization hypothesis

One of the milestones is the seminal work by Lipset [34](1959). The central thesis of this contribution is not only the existence of a positive correlation between democracy and growth, but also how any regime naturally evolves into a democracy as the economy develops. Scholars refer to this idea as the *modernization hypothesis*. The author tries to identify the necessary conditions for a democratic political system to emerge. He groups 48 countries into two political culture areas: Europe and English speaking countries and Latin America. The aim of this distinction is to compare diverse regimes among countries that share several common features. Besides, a democracy in Europe is inherently different from one in Latin America. The second step is dividing both groups in democratic and in less democratic countries. What is important at this point is that the criteria applied to assess in which category a country falls into are not the same for the two political culture areas. An European country is recognized as having a democratic political system if it has experienced an uninterrupted absence of one-party regimes since the end of World War I. A Latin American country instead is democratic if in the post-World War I period has had free and fair elections and has not been always under an autocratic regime.

The core of the analysis consists of the comparison of some indices of economic development between the democratic and the less democratic countries in each group. The variables involved in the analysis are wealth, the degree of industrialization and urbanization, education. In each of the measures and in both areas democratic countries score higher than less democratic ones. In order to explain how urbanization, industrialization, income growth and education actually affect the development of a democracy, the author appeals to a study by Lerner [33](1958) on countries belonging to the Middle East political culture area. In this work Lerner highlights what are the crucial steps for a society to reach a democratic political system: in the first stage, urbanization provides the basic resources for a modern industrial economy to develop. Secondly, increased literacy and education favor the adoption of norms of tolerance and discourage the adherence to extremist groups, putting the basis for democratic values and practices. Moreover, when literacy is coupled with the diffusion of new technologies, the third phase takes place: the production of newspapers starts and media become increasingly more widespread. This, in turn, represents a stimulus for literacy and further education.

The modernization of a society passes inevitably by the improvement of the living conditions of its lower strata that become more and more involved in the political life of the country. Along such a process, workers move from a situation of alienation from the national culture and politics, as if they were part of an isolated community, to a situation of integration with the rest of the society. A window of economic opportunities opens for them and the exposure to middle-class values and expectations makes extremist ideologies less appealing. The structure of the society is altered too: a large basis pyramid shape turns into a diamond one, characterized by the presence of an expanding middle-class.

While Lipset considers democracy a natural end of the modernization of a country, Moore in Social Origins of Dictatorship and Democracy [32](1966) identifies democracy as only one of three possible routes a political regime can pursue in its development, the

other two being fascism and communism. The Western-style democracy is the result of the combination of capitalism, a decisive parliament and critical historical events such as the Glorious Revolution in England, the French Revolution and the American Civil War. Fascism is the product of "revolutions from above", characterized by capitalists transforming agrarian societies into industrialized ones with the help of old privileged aristocracy and the lack of a strong popular revolutionary movement. The typical cases reported are Germany and Japan. Communism finds its origins in peasants revolutions and revolts. The strategy adopted by Moore to look for the profound reasons behind the success of a specific political system over the others in a country is to investigate on the structure of the society, the role of peasants, the agrarian system and how the pre-modern institutions related to the new growing industrialization. According to this view, the determinants of such different political outcomes should be found in this context.

Focusing on democracy, the author justifies its emergence as a political regime as the answer to the needs of checking the rulers, choosing better rulers and see the population represented and involved in the decision making of a state. The consequences of these requirements are the establishment of the rule of law, the power of the legislature and the welfare state. In the study of the pre-industrial economic and social background of Western democracies, one of the aspects that seems to have played a decisive role to favor the rise of a democratic system is the inheritance from medieval feudalism of the relationship between monarch and vassal. This sort of engagement consisted of a certain degree of immunity and independence of nobless from the king, the right to resist unjust abuses and has put the basis for the free contract between free people. Such ingredients and a general balance between the authority of the crown and the powers of aristocracy formed the fertile ground for the development of relatively autonomous parliaments. Although Russian, Japanese and Chinese societies presented similar features, still each of them lacked of some of such fundamental conditions, like the existence of contracts, or was affected by an excessive disparity between the ruler,

chosen by divine rights, and his subjects.

But the part interpreted by the nobility is not the only one that matters in the rise of a democracy. It is hard to find examples in history of revolutions followed by the establishment of democratic institutions run exclusively by the aristocrats revolting against the monarch. Such upheavals occurred in Germany and in Russia and did not resolve in a parliamentary democracy but in a strengthening of the power held by the nobility. What has proven to be crucial instead is a relevant participation of bourgeoisie in the process. The famous expression "no bourgeois, no democracy" coined by Moore marks the marxist idea of the indispensability of a class of town dwellers characterized by capitalist values. Nonetheless, it is opinion of the author that it would be wrong not to consider the impact and the behavior of aristocrats. The transformation of the agricultural production from a self-sufficing community business to a commercial activity is recognized as an important step accomplished by the landed upper classes. If the impulse towards commercial agriculture is weak, two are the possible outcomes: on the one hand a great mass of peasants could provide a basis for a communist revolution, on the other, if the upper classes are able to subjugate them while moving to commercial farming, fascism is the outcome. Moreover, the relationship between the aristocratic elite and the rising bourgeoisie is one of the most important determinants: in order to set-up a democracy they must be allied against the royal bureaucracy, the new elite should be composed by commercial and industrial leaders, the upper classes should absorb bourgeoisie economic habits. But also some degree of competition for popular support is beneficial, otherwise if nobles and town dwellers form a coalition against peasants and workers, the success of democracy is undermined and authoritarian regimes become increasingly more likely.

The most critical position to Lipset's modernization hypothesis was assumed by O'Donnell. In Modernization and Bureaucratic Authoritarianism [35](1973) he challenges the idea that democracy is a natural outcome of economic development by presenting the cases of Latin American countries which have experienced the fall of democracies in favor of

bureaucratic authoritarianisms. These regimes were under the control of new protagonists, fruit of modernization: professional military organizations that substituted the typically populist dictators. In this sense industrialization has produced bad effects for the consolidation of democracy in the more advanced and richest countries of South America, hence Lipset's hypothesis has proven to be wrong. This contribution fueled a debate during 70's and 80's on political transitions in South America.

Modernization: Theory and Facts by Przeworski and Limongi [39](1997) provides two possible interpretations of the modernization hypothesis. The first interpretation is the classical one: democracy is the natural result of the economic development of a country, that necessarily involves the industrialization of production processes, the diffusion of literacy and education, the growth of urban centers and the emergence of a middle class with bourgeoisie values. Przeworski and Limongi state: "as countries develop, social structure becomes complex, labor processes begin to require the active cooperation of employees, and new groups emerge and organize. As a result, the system can no longer be effectively run by command." This implies that authoritarian elites gradually lose their control on activities, while civil society, constituted also by workers' unions and new producers, emerges. This view is called "endogenous" and basically postulates that authoritarian regimes transform into democracies when some threshold of economic performance is reached. Under the second interpretation democracies and dictatorships can be established at any level of economic development. In this sense, modernization does not really affect the likelihood of a specific regime, as there are many different reasons for a political system to emerge or to fall. Among these causes, there may be the outcome of a war, international pressures, economic crises. How, then, is the strong evidence of a positive correlation between the level of income and democracy explained under this view? The answer is that whenever a country becomes democratic its chances to consolidate this achievement crucially depend on its economic performance. Under this interpretation, a democratic political system has a greater survival probability in developed countries than in developing countries. This view is defined

"exogenous", in the sense that it is not economic development to cause the transition, but it influences the stability of democracy. The next step of the reasoning is testing which of the two hypotheses better matches the historical evidence on transitions. The period of analysis goes from 1950 to 1990 and 135 countries are classified between democratic and non-democratic. The "endogenous" explanation seems to be confirmed if we observe that the probability of undergoing a democratic transition increases as the level of per capita income increases. However, this is true only up to 6000 dollars (1985, PPP). After this upper threshold, authoritarian rules become increasingly more stable and the probability of a democratic transition declines. Under 1000 dollars the political regime is exclusively autocratic. Between the lower and the upper thresholds, the first interpretation seems to find a greater empirical support, even if several dictatorships have developed getting wealthy without falling. But the authors question the reliability of such test. The classical view of modernization hypothesis predicts that if an economy under an authoritarian regime develops over a long period, it will eventually experience a change of rule and become democratic. In the period under study, only few dictatorships (19 out of 123) have seen their economic performance improve. A closer look at these suggests that of these 19, only three have transformed into a democracy after a period of economic growth. Among the remaining ones, some were still autocratic in 1990, some eventually changed to democracy but only some years after surpassing the level of 4115 dollars, identified by the authors as the critical value over which the probability of being a democracy is greater than 0.5. This evidence shows that there may be several reasons for an authoritarian rule to fall, and not all of them are economic. By looking at the survival probability for democracies, we observe that it monotonically increases as income per capita increases and is almost 1 when income per capita is greater than 4000 dollars. The explanation behind this fact is the higher cost for wealthy countries to promote a coup and restore dictatorship in terms of production. Furthermore, favorable economic conditions moderate distributional conflicts among the population. In poor countries instead, the same price is considerably

lower. Therefore, the picture attributes more appeal to the "exogenous" interpretation. The conclusion of this contribution is that the analysis of strategies and actors performs better at explaining the emergence of democracy than deterministic theories as the modernization hypothesis. A democracy can be established at whatever level of development or modernization. Economic factors are not important in this regard, while they play a central role in the consolidation of a regime. When a democratic transition occurs in a wealthy country, there are better chances that the new rule will last. On the contrary, if the same happens in a poor nation, the stability of the democracy is seriously challenged. However, the survival probability does not depend just on the level of income per capita, but also and crucially on the future prospects of the economic development. Democracies at an intermediate stage of development that suffer from economic crises are more exposed to the risk of a coup than democracies present in poorer but growing countries.

1.2 Structuralism vs. strategic interaction approaches

The works by Stepan and Linz offer a different approach to the matter. In order to identify the key determinants of democracy they choose a more decision-based over the structural analysis adopted in the first place by Lipset and Moore. The reason behind this choice is the necessity of finding alternative explanations to the ones emphasizing the centrality of economic factors. Furthermore, structural theories often lack of sufficient microfoundations. Under this framework, the establishment of autocracies is the consequence of failures of the democratic leadership. The same strategy is followed by O'Donnell and Schmitter in [36](1986), who provide a scheme to interpret transitions as consequences of decisions made by different actors: the soft-liners and the hard-liners for the authoritarian regime and radicals and moderates for the regime opposers, facing some dilemmas and constrained by environmental factors. In their contribution, they stress how during transitions the economic factors that are important for the consolida-

tion of stable regimes become less important and how relevant are negotiation, strategic interaction, indeterminacy, scarce information, hurried decisions and charismatic personalities, instead. Haggard and Kaufman [24](1995) observes how it is impossible to construct a theory on democratic transitions without taking into account the strategic behavior of the main actors, which generally are the elite, interest groups, the private sector, the middle-class, the poor, the opposition. Nonetheless focusing on bargaining and groups' decisions carries some risks: these theories take as given actors' power, preferences and capabilities. In this sense, they are not able to capture how these features evolve over time and depend on the underlying economic and social conditions. Secondly, they attribute little role to the economic resources and incentives involved in the negotiation. Therefore, in their theory, Haggard and Kaufman try to explain how preferences and strategies are shaped by the economic conditions in the context of a political transition. As a starting point, economic crises exert pressure on the relations between authoritarian regimes and the private sector financially supporting them, which is one of the key factors of their stability. When a deterioration of the economic conditions occurs and the ability of the regime to react is questioned, firms reevaluate the desirability of the current system and the opportunity of promoting a change. Similarly, as unemployment and good prices increase and real wages decrease, also the lower classes may manifest their discontent with upheavals, demonstrations and strikes. Among these, there also some willing to obtain concessions and fighting exclusively for political reasons. This means that the oppositions can exploit economic crises to gain consensus and support in their attempt to redesign the political order. Another important player is the military elite. In situations of social unrest the military can be commanded to stop the protests with the use of force and to repress any kind of opposition. However, sometimes, the army can refuse to do so, acting as a defender of popular sovereignty. Furthermore, an economic crisis may induce the government to decrease the amount of resources destined to the army, so that the loyalty of this interest group could be compromised. Obviously, when the economic conditions are

favorable, some of these potential problems have a lesser scope: the interest groups, the firms, the segments of society supporting the regime benefit from privileges and advantageous contracts. Nevertheless, there still might be some revolts, but the nature of the opposition would be in great part exclusively political. Thus, the stability of an authoritarian rule is more seriously threatened when the economic performance is critical.

The core of the analysis by Haggard and Kaufman is the characterization of crisis and non-crisis transitions. The empirical examples studied are Peru, Brazil, Philippines, Uruguay, Argentina and Bolivia for crisis transitions, Chile, Korea, Thailand and Turkey for non-crisis transitions. The two types of democratizations are compared looking at the consequences in terms of constitutional orders, military prerogatives, rights of participation in political life, the design of representative and decision-making institutions, political cleavages and alignments, the stability and the consolidation of the new rule.

First of all, in non-crisis transitions, despite the possible concessions, amendments and liberalizations obtained by the oppositions, the constitution and the general law system under which the change of rule occurs are those set up by the outgoing authoritarian regime. On the contrary, during crisis transitions, opposition parties gain a greater space of maneuver and sometimes are able to restore the constitution in place before the advent of the authoritarian regime. Secondly, the experience of Chile, Turkey and Korea suggest that during non-crisis transitions the outgoing elites have more chances of maintaining intact military prerogatives and authority. Emblematic is the case of Chile, where Pinochet, before losing his position, managed to appoint a number of public officials and to arrange conditions conducive for the preservation of the military control. In Argentina instead, the fall of the military rule was followed by great purges as it was responsible of severe crimes against human rights. In terms of political freedoms, there are several ways to restrain or even block the political participation of parties or groups considered a threat to the government newly established. Such restrictions can

be legal bans to voting, violent repression, or hidden manipulations of electoral results and activities. Non-crisis transitions are usually accompanied by a higher degree of restrictions: in some cases bans to organize, to vote, to create unions and to strike were preserved and high electoral thresholds hindered minority parties to see their members represented. On the contrary, the establishment of a new order in the aftermath of crisis transitions usually implies the removal of any kind of restrictions, even if there are some exceptions. For what concerns political cleavages and alignments, they generally reflect long-term trends and traditional coalitions. Besides, it is not easy to provide a direct link between short-term economic circumstances and party systems. Political transitions in Latin America were mostly re-democratizations; thus, the political parties emerged from them were often those present before the advent of dictatorship. Nevertheless, crisis transitions are generally associated with low barriers to political entry, the success of leftist anti-market ideologies, fragmentation and polarization of the party system, while non-crisis transitions present minor power of extremist groups, due to the influence of the military and of conservative parties. In non-crisis transitions, continuist movements, those which backed the autocratic regime, tend to be persistent and to maintain their strength, despite the dictator's fall. The last aspect taken into account in this work is how economic trends affect the stability and the consolidation of democracy. The authors reject the idea that social interests and relations determine the prospects for democracy, but they recognize that economic policy and performance critically shape the political power, the preferences in terms of democratic institutions and the wealth of different social groups. For the leaders of democracies born in the aftermath of economic crises, the main challenge is to react immediately to the pressing economic conditions and to fulfill the expectations of new opportunities. The necessity of measures to relaunch the economy often imply large deficits for these countries. The success of these policies, and the severity of the economic contingencies crucially influence the duration and the support of the new leadership. The problems faced by the leaders of democracies established after non-crisis transitions are of a different nature

and concern more social cohesion, the reintroduction of parties previously excluded in the political competition, inequality and the poverty of lower strata. Moreover, the persistent power of the military and the continuist parties which were loyal to the outgoing authoritarian regime imply divergent pressures on the political agenda, risks of coups on the one hand, and doubts on the real scope of the democratization on the other. Economic growth generally makes the life of leaders easier in both crisis and non-crisis cases: by reducing inequality within the society it moderates distributional conflicts and demands from different groups converge as the population becomes more homogeneous. Policy trade-offs becomes less stringent. If democratic governments fail to address effectively these demands of growth and equity, or the economic performance deteriorates, the support for a democratic system weakens, and different elites can catch new opportunities to get the power and restore an authoritarian rule.

The Third Wave: Democratization In The Late Twentieth Century by Huntington [29](1991) offers an insightful analysis of the third wave of democratization and provides some prospects for future developments. First of all, the author identifies the timing and the protagonists of each wave: the first one began around the 1820s and concluded before World War II, despite some democracies, starting from the rise to power of Mussolini, reverted to autocracies. It involved 29 countries. The second one commenced after World War II and has seen the number of democracies reach 36 and then, after a second reverse wave, decrease to 30. The third wave was in place when Huntington was writing and uncertain were its duration and scope. Secondly he recognizes 5 main factors contributing to the occurrence of the third wave democratic transitions. The first one is the crisis of authoritarian regimes due to the diffusion of democratic values that imposes some pressures on the survival of such political systems, which now crucially depends on the economic and military performances. As a second aspect, the general improvement in the living conditions of the whole population and of the middle class in particular, thanks to the incredible and unprecedented economic growth from the 1960s. Thirdly, the influence of Second Vatican Council which has marked a change of

position of the Church with respect to authoritarian regimes, acting as a guardian of political and human rights. But also a new role played by the European Community, the Soviet Union and the US. Finally, the "snowballing" or "demonstration" effect, e.g. the successful experience of countries undergoing a democratic transition has served as a model to imitate and has encouraged democratic movements in countries still under autocratic regimes. Although Huntington does not set up a theory or a formal framework to interpret the emergence of democracies, he provides an essential account of the historical, cultural and economic determinants of the third wave of democratization. As a consequence, it is valuable to present in a greater detail such findings in order to better understand the phenomenology of these events. Let us start from the impact of culture and democratic values. Authoritarian regimes breakdown is an important cause of the emergence of democracy. At the basis of the crises involving dictatorships there is often a problem of legitimacy. In this regard authoritarian rule shows different features from democracy: while the latter is able to renew its leaders and policies through new elections, the former sees its legitimacy weaken over time and is particularly vulnerable to failures in military actions and economic performance. Thus, in order to restore its legitimacy in front of the population, a nondemocratic government has no solution other than making some concessions, like the adoption of some democratic institutions. This mechanism has been beneficial to the spreading of democratic values. Two are the main views concerning the origins and the nature of democracy as a phenomenon. Some scholars, amongst these Kennan, look at democracy as a political system exclusive and peculiar of Western countries, and as such, it does not find a favorable cultural background in the rest of the world, characterized by different values and traditions. Moreover, it is confined not only to some specific areas, but also in time to a temporal interval between the 18th and the 19th century. The less restrictive perspective posits the inner and natural resistance of some cultures towards democratic values and institutions, namely Islamism and Confucianism. This means that democracy will hardly prevail in countries where such cultures have a strong support and

diffusion. For what concerns Islamism the author highlights the uncertainty associated with the future prospects of Arab autocracies, exposed to the increasing influence and diffusion of democratic values. On the one hand egalitarianism is an important value of Islamism, on the other in many Islamic countries political power is not separated from religious affiliation and Muslim groups support the adoption of religious law shari'a as the main code of laws. Notwithstanding the pressure exerted by Western democracies, the support for democratic institutions has remained relatively scarce in the region, due to the influence of Fundamentalist Islamic groups. There are some examples of authoritarian regimes in the Middle East and North African region that have allowed the organization of elections. Whenever this happened, Islamist parties have gained seats, undertaken antidemocratic positions and tried to introduce shari'a. As a consequence democratization appears quite unlikely in such contexts. Nevertheless, these fundamentalist pressures, that receive great consensus amongst the youngest, face the opposition of the military, which often play the role of guardians of the secular regime. On the effects of economic growth on the third wave of democratization, Huntington just observes how strong this correlation is, without providing any theoretical justification. He divides countries in three groups: the rich ones, the poor ones and those in the "political transition zone". Rich countries are already democratic while poor countries hardly adopt a democratic political system. The countries in the "political transition zone" are those which can concretely produce a political transition towards democracy, thanks to favorable economic conditions that make authoritarian rule hard to sustain further. Such evidence suggests that one of the main obstacles to the diffusion of democracy is poverty. However some countries that belong to the transition zone are oil exporting countries like Saudi Arabia, Kuwait, Oman, Iran. In these cases, despite the relatively high level of income, democratization is hindered by strong states controlling the revenues of the oil business and the redistribution of these resources among the population is limited. Hence, inequality within the society increases and improvements in the living conditions of the middle class, fuel of democratic transitions,

are restrained.

What emerges from this analysis is that Huntington agrees with Lipset on the centrality of economic growth to explain the success of democracy. Modernization, urbanization, increased literacy and education and the development of a solid middle class are the key factors behind the occurrence of the first wave of democratization, and important aspects of the third one. But this is not sufficient. Crucial is the presence of political leaders willing to support the transformation. So this is a mixed approach, in which both structural elements and individuals' and groups' decisions matter.

Another important contribution in the debate on the effects of a democratic regime on economic growth can be found in Przeworski and Limongi [38](1993). The central question posed in this paper is whether democracy is the best institutional arrangement to foster the economic performance of a country. To answer this question the authors provide a synthesis of the literature on the matter presenting in order arguments in favor and against the adoption of democracy. The first point addressed is the importance of property rights. There is a widespread consensus on the beneficial effects of secure property rights for investments. Nonetheless, it is not clear whether democracy entails an efficient support of such rights. According to a marxist view, democracy (in particular universal suffrage) is fundamentally incompatible with private poverty as the poor use their right to vote to expropriate the rich of their possessions and the rich have no other solution than subverting democracy to regain their power. Although the authors make clear that this view is too radical as the presence of several countries that are both capitalist and democratic suggests, they are more inclined to refuse the idea that democracy really offers the best shelter to property rights. They identify in the market and in the state the two main mechanisms by which the resources can be allocated. In general, the citizen has a double nature: she is an agent of the market but also voter. Therefore she can influence the final allocation of resources in two ways, through her preferences and initial resources and through her vote. The state offers people with scarce initial endowments the chance to promote an allocation of resources alternative

to the one produced by the market. In a market, initial endowments are distributed unequally among agents, while the distribution of voting rights among the population of a country crucially depends on the political system. Democracy confers the same voting rights to all citizens, thus it represents an opportunity for poor people, if they constitute the majority, to expropriate the rich at their advantage. As a consequence, the authors observe that the redistribution of resources carried out by a democratic system may represent a threat to the security of property rights. Several authors challenge this perspective by pointing out that an autocratic regime is possibly an even more serious threat: a dictator can always modify the rules to fulfill his interests and cannot credibly commit to a stable and persistent regime.

The next argument presented is dedicated to the effects of democracy on investments and in turn on growth. In 1959 Galenson and De Schweinitz proposed a view according to which democracy hinders economic growth: it increases consumption propensity to the detriment of investments which are recognized as the main fuel for economic growth. The explosion of demand for current consumption decreases the amount of savings and so the resources for new investments. In this respect, an autocracy, by commanding and controlling the demand, can favor investments, block current consumption and promote growth. Przeworski and Limongi propose an important criticism to this thesis. They stress that it is left unexplained the reason why dictators should encourage investments and be future-oriented.

Another possible obstacle to economic growth is the pressure exerted by unions and large firms on the decisions made by the state. The only way to prevent this kind of influence is "state-autonomy", an insulation from such pressures that is possible, according to the proponents of this idea, only under an authoritarian regime. This, again, is an argument against the adoption of a democratic system and, again, is exposed to the criticism that dictators could still behave in a suboptimal way. Nonetheless it is reasonable to believe that the influence of lobbies that care only about their individual objectives can be a menace to the economic development of a country, in particular

when the interests they want to fulfill are not in line with the needs of the rest of the society. A strong state, in the position of being capable of responding and restraining such pressures is necessary to ensure growth. Besides, it is recognized as one of the key factors that explain the success of Asian tigers, if compared to Latin American developing countries performances.

Several scholars, among these Barro, Findlay, Olson and Przeworski, have constructed models in which the state has to choose the level of government spending under different political systems and so under different preferences. In this frameworks, dictators maximize their utility with a level of government spending that does not correspond to the one that maximizes output. This, in turn, is an argument in favor of democracy. Unfortunately these models result to be unappealing because of their crucial dependance on the assumptions in terms of preferences, perfect information and complete markets that hardly match their counterparts in reality. Again, the lack of a satisfying theoretical model emerges as a limit of this analysis.

Przeworski and Limongi conclude that the existing literature on the matter is inconclusive and is not sufficiently convincing in answering the question whether democracy fosters or hinders economic growth. Furthermore, the authors suggest that thinking about different regimes is not the best strategy to tackle the problem, while it may prove to be more reasonable to think in terms of institutions, good policies and optimal rules.

1.3 A mixed approach

The most recent contributions concerning political transitions try to mediate between the determinism and structuralism typical of Lispet's and Moore's works and the strategic interaction frameworks emphasizing agency and actors' decisions. In this mixed approaches, a democratization is a possible outcome of a formalized game, in which players' incentives and constraints are shaped by some economic features, like income

inequality, income shocks and by other contingent circumstances such as uncertainty, asymmetric information and leadership. The theoretical framework offered by Acemoglu and Robinson [2](2001), extended and rivisited in the book Economic Origins of Democracy and Dictatorship [3] (2006), represents one of the most interesting ones in this new literature.

The proposed theory is set up to account for the main drivers of political transitions from autocracy to democracy and vice versa. In particular, it is inspired by the episodes occurred in Latin America on the one hand, and the democratizations of Western economies on the other.

In the model, democratizations, revolutions and coups are different outcomes of the contraposition and the interaction of two different social groups: the poor and the elite. The "social conflict" lies in the determination of the tax rate. While in democracies the tax rate is a result of majority voting, in autocratic regimes, however, the elite imposes a rate on the entire population. The median voter, who is poor as there are more poor in the society compared to rich, is excluded from the decision. The elite group prefers the autocratic regime since the fiscal pressure on the rich is higher in a democracy. The poor can set up a revolution whenever the political regime is autocratic, while a democracy can be reverted through a coup by the elite group, to restore their control on the economy.

A key aspect of the model is the stochastic nature of income: it can oscillate between two states, high and low. It depends on the level of technology, which is generally high but there is some probability of a "rainy day", during which the technology is low. Hence, there is some probability of negative shock hitting the economy. This feature is incorporated in the framework to capture a recurring pattern observable in empirical studies: during recessions, the cost of promoting a political change decreases for both groups. Br§ckner and Ciccone [11](2011), for example, observes it for Sub-Saharan countries hit by negative income shocks. The authors proxy negative income shocks by negative rainfall shocks in their instrumental variables approach, which significantly

affect the countries' agriculture-based economies.

In the Acemoglu and Robinson model, individual income is the product of the level of technology, which is identical for the two groups, and the individual amount of an asset h that can be interpreted as physical or human capital or land. An additional term represents a lump-sum transfer, which is not person specific. This way, a source of heterogeneity is introduced: the asset is distributed unevenly between the two groups. The elite is endowed with a large amount of h, whereas it is relatively scarce among the poor. Such inequality plays a central role in shaping the stability of a political regime. One of the predictions of the model resides in the high instability (frequent transitions to democracy and back) of countries characterized by high inequality and uneven income distribution in the population.

Every time a revolution is successful, the poor expropriate a part of the asset stock of the economy and the rich lose everything. Facing the threat of a revolution, the elite can apply redistributive measures to moderate the social tensions, maintaining the political leadership. Nonetheless, the commitment problem implies that every promise by the elite of keeping such redistributive transfers is not credible, then the poor can find a revolution still more appealing. But the elite can also extend the franchise and establish a democracy through a smooth transition. On the other hand, in a democratic political system, the elite can mount a coup and restore an autocratic regime.

Then the model can be represented as a repeated game with only two players, the poor and the elite, in which the state of the economy is characterized by the level of technology, that can be high or low, and the the political system, that can be "autocratic", "democratic" or "revolution".

After having done some crucial assumptions on the structure of payoffs to model the specific incentives of the two factions, Acemoglu and Robinson present four different kinds of equilibria, depending on the values taken by three key parameters: the amount of inequality, the probability of a recession and the entity of recessions:

1. An economy remaining autocratic forever;

2. A society that becomes democratic the first time a recession occurs and remains so forever;

3. A society that becomes democratic the first time a recession occurs but is constantly menaced by the risk of a coup. However such event never happens as the coup threat induces the democracy to set a tax rate lower than the optimal one. In this way, rich have no incentive to produce a coup;

4. An unconsolidated democracy: whenever the level of technology is low (a recession) there is a change in the political system. The economy fluctuates between democracy and an autocratic regime.

In this context, two further conclusions of the model are particularly interesting for our analysis:

- An increase in inequality makes revolutions and coups more appealing;
- Keeping inequality and other parameters constant, there is no correlation between the total stock of the asset h in the economy and the probability of having a democratic transition.

The last point seems to be in contrast with the modernization hypothesis. Acemoglu and Robinson (2001), however, show that it is possible to extend the model to include this aspect. One way to do so is to assume that recessions hit poor countries more severely relative to rich ones (Acemoglu and Zilibotti, [4] 1997). What will be crucial for the following analysis is the first point: the importance of income inequality. The result of contrasting interests and incentives is an inverted U-shaped curve representing the association between inequality and the likelihood of a democracy. For low values of inequality, there are no incentives for the society to change the status quo and produce a democratization. Therefore, the autocratic regime is stable and safe. As inequality between the poor and the rich increases, a moderate amount of redistribution makes democracy less costly than a coup for the elite. As a consequence, the poor will produce

a democratic transition and the elite will not try to revert it. Finally, if inequality exceeds some threshold, democracy is not sustainable anymore for the elite, which finds convenient to mount a coup. At the same time, the poor will fight for democracy. The outcome is a situation of instability, with the country oscillating between different political regimes.

2 Empirical works

2.1 A first cross-country test

Determinants Of Democracy [8](1999) by Barro is a first attempt to test the modernization hypothesis empirically. The first problem to solve when we deal with empirical analyses of democracy is finding a convincing measure of this variable. In order to choose a suitable measure, it is necessary to make clear the concept of democracy and which of its peculiar aspects to take into account. In this contribution, the author focuses on the political rights to vote and to be elected and the measures chosen are two: one produced by Gastil, and subsequently adopted and developed by Freedom House, the other compiled by Bollen. The former is attributed on a subjective basis and countries are ranked in a scale between 1 and 7, with 7 being the lowest level of democratic rights. The Freedom House Index assesses whether there are free and fair elections, whether those who are elected actually rule, whether there is political competition between the majority, the opposition and the minorities. Such indicator is transformed further, with the result of having a range between 0 and 1, with 1 being the maximum level of democratic rights. In this way, Gastil's and Bollen's measures are now perfectly comparable. Looking at the world unweighted average of the democracy measure, the author observes how it has declined from 1960s until the second half of 1970s. Then it has increased again almost reaching its initial level in the 1990s. This evidence is consistent with the description presented in Huntington (1991) of the second wave of democratization, the second reverse wave and the third wave of democratization. It can be explained with

the experience of Sub-Saharan countries. In 1960s they had just gained independence after the post-war decolonization, and many among them were democratic. But this situation did not last long: democracy was subverted in favor of authoritarian regimes. Only after oil crises there was a new wave of democratic transitions. The econometric analysis takes into account a time span that goes from 1960 to 1990 and a set of more than 100 countries. The equation employed to test the modernization hypothesis sees as the dependent variable the value of democracy in 1972, 1975, 1980, 1985, 1990 and 1995, while as regressors there are 5 years and 10 years lagged democracy, gross domestic product, education, urbanization rate, population and a dummy for oil exporting countries. Such regressors are evaluated 5 years before the dependent variable observation. Furthermore, on the right hand side there are also a time-varying constant and the error term. If the coefficients on the lagged democracy values are positive and their sum is less than 1, then democracy converges to a moving target determined by the other regressors. The method applied is not ordinary least squares but the SUR, seemingly unrelated regression, which allows correlation over time of error terms. However the results are not different if OLS or WLS are employed: they show that democracy is persistent over time, as both coefficients on lagged values are positive and their sum is less than zero. Moreover, the coefficients on log of per capita GDP and the level of primary education are positive and significant, while the coefficient on the gap between male and female primary attainment is negative and significant. The last result means that societies where there is a profound inequality between the opportunities offered to men and those offered to women are less likely democratic. This evidence seems to give validity to the modernization hypothesis. The negative and significant coefficient for the oil exporting country dummy confirms Huntington's idea of the relative resistance of authoritarian regimes, whose economies crucially depend on the oil exports, to democratic pressures due to modernization. Since the oil business is under the control of such rulers, the redistribution among the population of its profits is less than the redistribution of resources generated by human and physical capital accumulation. The

development of a middle class is undermined and the socio-economic conditions for the emergence of democracy are hardly met. The coefficient for the urbanization rate is negative and slightly significant. Thus, neither the idea that in countries with a high dispersion of the population in rural areas are less democratic, nor the hypothesis that countries where the population is concentrated in urban areas are easier to be controlled by dictatorships find empirical support. At this point Barro includes in turn different variables as regressors to test also further hypotheses on the determinants of democracy. When some measures of inequality, like the Gini index for income distribution, are taken into account, the associated coefficients are not very significant, and also the coefficients related to other variables lose predictive power. Besides, as the Gini index is not available for all the countries and the dates of the set, the sample is truncated and such results are generally less meaningful. In order to test whether a more even society is more likely democratic, an index of ethnolinguistic fractionalization is added as right hand side variable. The outcome is a negative (meaning that increasing inequality deters the establishment of democracy) but not significant coefficient. Similarly, other variables like colonial heritage, upper level education, security of property rights and health are used to verify their importance as determinants of democracy, but each of them turns out to be scarcely significant. The only case which appears relevant is the regression including religion dummies. In this setting, what emerges is the negative and significant correlation between electoral rights and the Muslim faith. The evidence shows that Protestant countries are almost always democratic in the time span considered, while Muslim countries are generally nondemocratic. This observation suggests that further investigation on the relationship between religion and political regimes on theoretical grounds is a possible and necessary future line of research.

2.2 The critical junctures hypothesis

Barro's analysis has been criticized by Acemoglu, Johnson, Robinson and Yared in Income and Democracy and in Reevaluating the Modernization Hypothesis [1](2008). In this two papers, the authors challenge the methodology adopted and, consequently, the results obtained by Barro. In particular, they question the central idea of modernization hypothesis that economic growth fosters the establishment of democracy. As a result of their approach, there is no such causal relationship if the time windows chosen are the 20th century or postwar era. In order to explain the positive correlation between the two variables they propose an alternative theory that stresses the importance of very long-term determinants. The equation tested by Barro, it is opinion of the authors, is affected, first of all, by problems of endogeneity: does the causality goes from income growth to democracy, or perhaps is democracy to generate economic growth? Secondly there is a risk of omitted variables that make the estimation of the coefficient on per capita income growth rate inconsistent and biased.

The econometric methodologies employed to reduce the impact of these problems on the estimation are two: the first one is including country fixed effects, the second one is applying an instrumental variable strategy. The use of country fixed effects offers the opportunity to investigate on the existence of a possible causal relationship between democracy and growth, avoiding the omitted variables bias determined by time-invariant country-specific factors. However, country fixed effects are not sufficient to exclude the risk of omitted variable bias, since there may be time-varying factors that shape this relationship, which are not included in the regression. Hence the authors, as a second check, instrument income with past savings rates and changes in income of trading partners. The mentioned instruments should be correlated with income without directly affecting democracy, as the exclusion restriction condition prescribes. The indices for democracy for the postwar era are again the Freedom House (rescaled between 0 and 1) and the Bollen measures of political rights, exactly as in Barro's contribution.

For the longer sample regressions, the measure of democracy is the composite Polity index, obtained as the difference between the Polity Democracy and the Polity Autocracy indices and then rescaled between 0 and 1. It is based on the competitiveness of political participation, the regulation of participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive. The dependent variable is again democracy, while on the right hand side there are democracy lagged, income lagged, a set of covariates, country dummies, year dummies and an error term. This equation corresponds exactly to the one tested by Barro, except for the presence of country fixed effects. But the results are dramatically different: by including country fixed effects the positive and significant correlation between democracy and income disappears. This is not due to large standard errors, the estimation is relatively precise and the coefficient on income is close to zero and not significant. Such an outcome is obtained either for the postwar era analysis for which democracy is measured with both the Freedom House and the Polity indices, and income is given by Penn World Tables and for the 20th century regression where democracy is measured with just the Polity index and income corresponds to Maddison data. The evidence is robust to a number of checks, different estimations and alternative specifications. The following step is, to clear the ground of the concerns about the omitted variables bias, the instrumental variables estimation. The first instrument used is the savings rate, which is correlated with income. In order to be a good and valid instrument it should not have a direct effect on democracy, in accordance with the exclusion restriction condition. In this regard, the authors find hard to justify with a theory why the savings rate should affect democracy only indirectly, through the channel of income. However they believe that political systems should not be influenced by changes in the savings rate, though there are some arguments in the literature stressing the importance of expectations on future political developments for consumption/saving decisions. Another problem arises in the second stage of the estimation: the savings rate could be correlated with some variables not included in regression, like the index for democracy in previous periods,

as democracy is quite persistent. Nevertheless these concerns seem to be of a lesser importance and are resolved in part by robustness checks and the inclusion of further controls. The picture that emerges is again the absence of a causal relationship between income and democracy, in line with the fixed effect methodology. The same outcome is obtained when using the second instrument, the trade-weigthed world income.
At this point, it is natural to ask how do the authors justify such strong correlation which is so popular in the literature and that finds an easy support if we observe that the most advanced economies have democratic political systems, while authoritarian regimes are more common among the less developed countries. Obviously they propose a different explanation. According to Acemoglu and Robinson, the origins of democracy and dictatorship, of the different well-being conditions and political regimes across countries and of the relationship between democracy and income must be looked for by going back to 500 years ago. Different countries have undertaken alternative development paths, characterized by diverse combinations of political and economic institutions, that can be traced back to 1500. Why 1500? Because it is considered a critical juncture: different strategies applied in that moment by European settlers in various regions of the world have led to the establishment of different economic and political institutions. But the early stages of American colonization is not the only critical juncture. Other critical junctures are for instance the aftermath of independence, the age of industrialization, the rise of Islam or the the collapse of feudalism for Western European countries. In this framework, it is neither income that causes democracy nor democracy that causes income. They are both determined together as one of the possible evolutions having its roots in the critical juncture. Testing empirically this theory is not an easy task. In order to achieve this goal, the authors set up an econometric strategy with specific assumptions. In particular

Such system and such assumptions imply that a critical juncture, interpreted as a shock affecting both democracy and income, is persistent over time, given the unit

roots present in the two processes. The fixed effect estimation of the coefficient determining the causal effect of income on democracy is relatively accurate if in the time span considered there is no shock common to both variables. On the contrary, if the critical juncture occurs in the period under analysis, the fixed effect estimation is strongly inconsistent. This is why the long-term regressions could suggest a causal effect between income and democracy. Thus, the test to prove the validity of the critical junctures hypothesis consists of including in the regression variables correlated with the common component in the two shocks, e.g. the historical determinants of alternative development paths. If at this point the estimate of the causal effect of income on democracy becomes less significant and quantitatively small then this evidence should shed some doubts on the reliability of the modernization hypothesis. The proxies for the occurrence of a critical juncture are the constraint on the executive and the independence year for the entire world sample regression. The results suggest that income still affects significantly democracy, but the impact is quantitatively reduced. The authors justify this as a consequence of the choice of proxies, which are very crude ones for the identification of divergent development paths. Therefore, a further proxy is included: religion. Several scholars have emphasized the influence of religion on the emergence of alternative political systems and cultures. Weber, for instance, recognizes in Protestantism the cultural and ethical pre-condition of capitalism. Huntington instead, stresses how Confucianism and Islamism represent, with their ideologies and values, obstacles to the third wave of democratization. When religion is included in the regression, the coefficient of interest is still significant but loses considerably magnitude, to the extent that it takes an incredible economic growth to get a democratic transition. If the sample considered involves only former colonies, it is easier for the authors to identify the historical determinants of divergent development paths. As in the 2002 paper, Acemoglu et al. identify in 1500 indigenous population density a good proxy to predict the kind of institutions arranged by European settlers, which, as mentioned above, is a key factor in the determination of the different economic and political outcomes char-

acterizing different countries. Thus, by adding population density in the set of proxies, the coefficient expressing the strength of the causal relationship between income and democracy gets definitely small and not significant, while all the coefficient associated with the proxies included are relevant and significant. Therefore, this evidence supports the greater importance of critical junctures over modernization in accounting for the origins of alternative political regimes and economic conditions.

2.3 Demographic transitions and democracy

On Demographic and Democratic Transitions by Dyson [18](2013) provides a different theory on democratizations, concerning the demographic dimension of political transitions. In particular, this work focuses on the interplay between different stages of the demographic transition and the emergence of democracy. For these features, it offers a different perspective with respect to the standard theories in social sciences, emphasizing the impact of economic factors. A demographic transition develops in three phases: initially, mortality and fertility rates are high. In the next phase, the mortality rate declines while the fertility rate remains high. At this point, population grows and there is an increase in young adults. Finally, also the fertility rate decreases and population growth slows down. The theory proposed in this contribution is in line with the view that young age structures and fast population growth can be adverse to the establishment of a democracy. However, instead of focusing on the demographic factors that hinder democratizations, this work takes into account how demographic contingencies can foster a political transition. The starting point is the consideration that low life expectancy at birth is inimical to democracy. When this indicator increases, people give more importance to savings, to health, as they care more about the future. Savings and investments are fundamental for economic growth. As people get healthier, they also get more concerned for matters of social equity and justice, thus they have more incentives to contest an autocratic rule. Moreover, when mortality falls, population growth

can represent a serious challenge to the social order of a country: the state must be able to provide economic opportunities to the increasing mass and to respond to its demands and needs. If the authoritarian rule fails to do so, a growing population is an element of de-stabilization. In the next stage, when fertility declines too, population aging raises new and different problems. In particular, the life, the expectations and the interests of women change: they move from a condition in which their main activity is raising and educating children, spending most of their time at home, to a condition of greater independence, made of opportunities similar to those offered to men. As this process occurs, also woman's participation to the political life of a nation increases and these pressures make the extending of franchise to women unavoidable. But this is not the only consequence of fertility and mortality decline. When mortality decreases first, there is a natural increase in the proportion of young adults among the overall population. As fertility falls too, the same generations keep having a disproportionate impact in the age structure of the country. Population aging implies that these now mature segments demand greater consideration to the elites and challenge the leadership with the support of their extraordinary numbers. The result is that stability of the authoritarian regime is threatened. In order to test these hypotheses, Dyson applies an econometric strategy involving the median age of the population as an indicator of the progress stage of the demographic transition and Vanhanen's measure for democracy called ID. The latter is a composite index, obtained as the multiplication of C, political competition, calculated as the proportion of votes given to parties other than the largest one and P, participation, the proportion of population voting. Vanhanen's ID looks like a particularly crude measure of democracy, being just the product of two factors. However, it presents some advantages. For example, it does not depend on subjective assessments of freedoms and rights. Nonetheless, it is flawed at least in two respects: firstly, it neglects the degree to which government offices are actually filled by elections; secondly, P, participation, is calculated over the whole population and not only over the adult one. The latter drawback implies that in young popula-

tions P is downward biased. This problem is solved by dividing ID by the proportion of people aged 20 and over. The new index is age-adjusted and is called AID. The specification tested sees AID as the dependent variable, while on the right hand side there are median age, log of GDP, percent of population in agriculture, some measures of education and a constant. The first analysis takes into account most of European countries and United States from 1870 to 2005. The result of OLS highlights that the coefficient on the median age is always positive and significant. From the comparison of the evolutions of the median age and AID emerges that while median age gradually increases, AID experiences fast movements. The main reasons behind such behavior is the inclusion or exclusion of the female electorate. When the franchise is extended to women, AID sharply jumps. But also the advent of totalitarianism constitutes an important source of variation for the index of democracy. A first consideration fruit of the evidence offered by the time series of AID and median age involves the timing of the AID increase leading to democracy. What data show is that generally such democratic surge is anticipated by the fall of the fertility rate in the final stage of the demographic transition. This trend confirms the theoretical hypothesis that population aging favors the people's interests in the political life of a country and participation by producing what the author calls human agency. A second cross-sectional regression involves 151 countries for 1980, 1990 and 2005 and includes as control variables log of GDP per capita, urbanization, employment in the agricultural sector and a measure of secondary education. Such specification is tested both with and without the median age. The outcome shows that when the median age is included for the 1990 and 2005 cases, income per capita, otherwise significant, becomes not significant, while the coefficient on the median age is positive and significant. Such result questions the validity of typical cross-sectional studies postulating the importance of income in the determination of democracy. The paper concludes by stressing the importance of demographic factors for the emergence of democracy. The decline in the fertility rate, in the final stage of a demographic transition, appears crucial: as a society becomes increasingly composed of

adult men and women, autocratic political institutions tend to disappear. Besides, this pattern indicates that democracies in countries characterized by young age structures are more fragile and exposed to the risk of reverting to authoritarian regimes, because of the element of de-stabilization implied by their demographic dimension.

Part II

The Arab Spring: the Experience of Egypt and Tunisia

The wave of revolutions starting at the end of 2010, generally referred to as the Arab Spring, can be traced back to December 17, 2010 when the Tunisian fruit and vegetable merchant Mohammed Bouazizi set himself on fire in protest of the government. This part focuses on Tunisia and Egypt in the analysis of the and pre- and post-revolutionary socioeconomic conditions that triggered the uprisings. In what follows, I will provide a brief historical and political account of the main events leading up to the outburst.

3 Historical and political background

3.1 Tunisia

Tunisia gained its independence from French protectorate in 1956. Many different groups took part in the struggle for independence of colonial rule. The transition process was not peaceful: once the French government assented the protectorate termination, the different souls of the independence movement started to compete to take control on the newborn republic. The country was on the edge of a civil war between the islamist faction, led by Salah Ben Youssef and the secularist nationalist party Neo Destour, guided by Habib Bourguiba. Finally Bourguiba, by controlling the elections for the Constituent Assembly, managed to reject islamist pressures and became the first president of a single-party republic. Bourguiba is recognized as the father of modern Tunisia. Although the Neo Destour party proclaimed itself defender of the Constitution and the form of government was officially a republic, Bourguiba's rule endured 31 years and can be considered a de facto regime. Neo Destour was the only legally permitted party and media and unions were under its control. Party membership was crucial in order to find an employment. The government resulted to be responsible of several episodes of political repression, especially against islamist organizations, the main source of instability for the political system. Bourguiba acted as a patriarch and a teacher for Tunisian population. His political ideology found its origins in nationalism which he translated in the support for the construction of a modern, secular

and liberal state. The main challenge of his political and economic agenda consisted of modernizing the country consistently with the respect of old traditions and Islam. Under Bourguiba's rule, Tunisian economy fluctuated between phases of growth and stagnation. Tourism industry experienced an expansion, and foreign investments financed the development of new activities. The last years of Bourguiba's mandate were characterized by a slow aggravation of his health conditions, the consequent retirement from the political scene, and by an exacerbation of repression towards islamist groups. Habib Bourguiba's presidency lasted until November 1987 when Zine el Abidine Ben Ali, Interior Minister and head of the Tunisian intelligence, rose to the presidency in the "jasmine revolution". It was a peaceful revolution: Bourguiba was declared medically incapacitated, which is why it was also called "the medical coup d'etat". During the first months of his office, Ben Ali approved a series of reforms with the support of the ruling party, that had changed its name in Rassemblement Culturelle et Democratique (RCD), which reduced many of the political restrictions introduced under his predecessor. Many islamist activists that had been imprisoned were released and RCD put the basis for a fruitful confrontation with Ennahda, the islamist party. However this new deal of liberalizations didn't last long. RCD and Ben Ali were accused to have manipulated 1989 elections, when the president won with incredibly high margins and gained all the seats. The reaction of the government to the uprisings and protests was violent: thousands of islamist activists were arrested, official censorship and many restrictions were reintroduced and Ennahda was banned. The repression exerted by the government became increasingly more exacerbated over the years, making Ben Ali's rule an extremely autocratic regime. Although one of the first reforms during his mandate was an amendment of the constitution which limited to three the number of five-year terms for which the same president could be reelected, a constitutional referendum, in 2002, removed this limit and allowed Ben Ali to run for the elections also in 2004, when, under the previously existing law, he would have had to retire. This offers an informative picture of the great power held by the president and the scarcely democratic conditions

in which the political system was operating. Joffé [30](2011) describes this regime as a "liberalized autocracy" following the definition by Brumberg (2002) essentially saying that elections and pluralism exist only under government control and political and private life are subject to selective repression.

The episode that inevitably led to the outbreak of the Arab Spring was the self-immolation of Mohamed Bouazizi, in reaction to the treatment received by government authorities. Bouazizi was 26 and one of the many tunisian *diplômés-chômeurs*, young graduates who cannot find a permanent job, when he set himself on fire on December 17 in 2010. His protest was against the local authorities that the same day had seized the tools he used to sell fruit and vegetables and that many times before had hindered the merchant from conducting his small activity. The fact had immediate resonance throughout the whole country and provoked major uprisings of the general public against the repressive regime of president Ben Ali. The protestors, not only in the capital Tunis but all over the country, called for the resignation of Ben Ali. Lawyers, teachers and many different categories of workers decided to strike and joined the protests. At the same time, the regime tried to hide the diffusion of the news about the wave of uprisings by hacking the Twitter and Facebook accounts of those who reported the episodes of violence experienced by the rebels and by controlling the media. Surprisingly, the protestors concentrated their discontentment on the president and his family themselves, rather than on the RCD which formed the actual core of the regime that has de facto been ruling the country since 1956. Only after Ben Ali stepped down and exiled to Saudi Arabia, the resolution of the RCD started while many parties that were previously banned, among these the islamist Ennahda, the Tunisian Workers' Communist Party and the secularist and reformist Congress for the Republic, were legalized. The first democratic elections after the fall of Ben Ali's regime took place on October 23, and determined the members of the Constituent Assembly. The three-party coalition currently governing Tunisia is the result of the free elections in October 2011.

Ever since Tunisia is undergoing a lengthy political transition characterized by the historical contraposition between the islamist party Ennahda, which obtained the relative majority of seats in the Constituent Assembly, and the secularist souls of the revolution. In particular the first party, Ennahda, guided by Al-Ghannushi, despite being favorable to the interference of Islam principles into public and politic life, is trying to contain the islamist pressures and to assume a more liberalist and democratic position which involves greater economic freedoms, a greater participation of women in politics, and a more accommodating and moderate relationship with the Western world. Although it was accused to doublespeak and to secretly support the Salafists who killed Chokri Belaid, leader of Democratic Patriots' Movement, and Mohamed Brahmi, leader of People's Movement, Ennhada's leaders condemned these assassinations and accepted to establish a caretaker government with the help of opposition parties and to call for new elections in 2014.

3.2 Egypt

In Egypt, in response to the political developments in Tunisia, political opponents of the Mubarak regime from three different political camps called for demonstrations on Cairo's Tahrir Square on January 25, 2011. On the 11th of February 2011 the president Hosni Mubarak resigned, giving an end to his 30-year rule. He was the leader of the third autocratic regime that had been ruling the country ever since King Farouk had been forced to resign in 1952. After a short transition phase, Gamal Abdel Nasser, the leader of the revolution at that time, assumed the mantle of presidency of the newly founded republic in 1954. Few months later, he banned the Muslim Brotherhood, that he accused to be responsible to an attempt on his life. His office was characterized by a series of socialist reforms aimed at modernizing the country. Among these, there was the construction of the Aswan Dam and the nationalization of several industries, e.g. tobacco, cement, pharmaceutical and phosphate, which previously were under the control of French and British companies. Very soon he became the most prominent leader

of Pan-Arabism in the area, following the nationalization of Suez Canal and the subsequent victory in the so called Suez Crisis. Although Nasser's rule was considered an autocratic regime, responsible of episodes of repression, censorship and human rights' violations, it managed to free Egypt from the British colonialism and influence and from international pressures, and to make it an example for the other Arab countries in the area. He died for an heart attack in September 1970, two years after the defeat of Egyptian armies in the Six-Day War.

His successor, Anwar as-Sadat, who was the former vice president, despite declaring in public to be willing to continue the path designed by Nasser, undertook a series of measures that marked a change in Egyptian foreign policy. On the one hand, he initiated a peace dialogue with Israel which eventually resulted in a peace agreement in 1979. For this achievement he was awarded the Nobel Prize for Peace. On the other hand, however, Egypt remained isolated among the Arabic countries and was temporarily expelled from the Arab League due to the fact that the Camp David peace treaty was obtained without the involvement of the other Arab League members. His domestic policy brought some liberalizations which often resulted to be unpopular among Egyptians and led to protests and upheavals. Even though he did not give the Muslim Brotherhood legal status, he did promote some collaboration of that influential group with his regime and during the "rectification revolution" freed from conviction several political prisoners, close to islamist groups. Nonetheless, he was assassinated in 1981 by a killer squad under the orders of a radical islamist group, called Egyptian Islamic Jihad, which accused Sadat to be a friend of Israel and an enemy of Pan-Arabism.

In the sequel, Hosni Mubarak, the former vice president, became president and he succeeded in restoring Egypt's membership in the Arab League in 1989. In 1982, he declared a state of emergency and he continued ruling the country in a liberalized autocratic regime until 2011 (Joffé, 2011). Having a long career in the army, culminated with the appointment of air force marshal, Mubarak was the expression of Egyptian military interests and throughout his regency, the military has formed the basis of his

power. Although he never proved to be open to a peace dialogue with Israel as his predecessor, Mubarak gained the political support of US by offering the alliance of Egypt in the Gulf War against Iraq. The participation of Egyptian military forces in the war granted substantial economic advantages to the country and its economy. However, islamist groups, identified by Mubarak as the main political opponents to his regime, could not forgive his close ties with the US and tried to attempt on his life many times, without success. The role of the Muslim Brotherhood had basically remained unchanged under the Mubarak regime compared to Sadat's regency. It had been tolerated but never reached legal status. As a result of the 2005 parliamentary elections, members of the Brotherhood succeeded to win 88 seats as independent candidates which effectively rendered them the "first opposition party of modern era Egypt", Traub (2007). In their role as an opposition party of the Mubarak regime, they were a key factor during the protests in early 2011 and even more so during the political transition in the aftermath of the revolution (Stepan and Linz, 2013). Besides the Muslim Brotherhood, the group that demanded and evoked Mubarak's resignation on Tahrir Square was a diverse mix of people with various political and religious backgrounds - both men and women and from different social classes. The only consensus among most of the peers was the discontent with the current regime. Their visions of Egypt's political and economic future were mostly incompatible, which became particularly obvious after February 11, when Mubarak stepped down and the Supreme Council of the Armed Forces (SCAF) took over the ruling power.

Ever since, the political situation in Egypt has remained unstable. Mohammed Morsi is the first democratically elected president of the story of Egypt. His regency was coined by ongoing debates on the constitutional draft and his overall controversial approach towards democratization (Awad, 2012). The protests occurred in response to the adoption by Morsi of extraordinary powers led to violence and finally to the overthrow of his rule by the army. Furthermore, the military, which keeps holding on to many of their privileges and does not seem to credibly commit to democratization, constitutes

yet another threat for political transitions towards democracy (Fecteau, 2012).

4 Income and economic performance

4.1 What data say

World Bank data on GDP per capita annual growth rate show that except for 1991 in Tunisia, this variable has remained always positive in both Egypt and Tunisia from 1990 until 2011, when it declined to 0% for Egypt and to -3.14% in Tunisia. This date coincided exactly with the outbursts of the Arab Spring. The evidence suggests that, despite the fall of GDP per capita growth rate due to the global crisis in 2008 and other fluctuations, these two economies have flourished throughout the last 20 years preceding the revolts, reaching peaks of 5.63% for Tunisia in 1992 and 5.36% in Egypt. The overall picture dsplays that the Arab Spring movement falls, under the distinction made by Haggard and Kaufman (1995), into the non-crisis transitions category, as the decline in GDP growth seems to be a consequence, not a cause of the upheavals. The modernization hypothesis would predict that countries experiencing a stable economic growth over a long period should undertake the right steps towards the establishment of a democracy. Moreover, a general improvement in the living conditions due to the favorable economic circumstances should imply, under this view, the emergence of the civil society, the development of a middle class, the diffusion of democratic values. But, is this what has really happened in Tunisia and Egypt? In this sense, the main discussion will concern to what extent the increasing welfare has contributed to the emergence of a middle class and how were the new resources distributed among the population. Furthermore, has the inequality within the society increased or decreased? Is the outbreak of the Arab Spring the result of a natural evolution due to the failure of authoritarian regimes and the success of economic performance or just the reaction to the negative shock of the world financial crisis?

Poverty

Let us start from the study of poverty measures. A first look at the poverty headcount ratio at national poverty line (World Bank data) displays that Egypt and Tunisia have followed opposite trends since 2000. Such measure has decreased for Tunisia from 32.4% to 15.5% in 2010, while it has increased from 16.7% to 25.2% in 2011 for Egypt. However, we should interpret these figures with caution: they crucially depend on the national poverty line, which is country specific. If we focus instead on the headcount ratio at the 1.25 USD (2005 PPP) a day poverty line, we observe that from 2000, for Tunisia it has monotonically decreased from 2.55% to 1.06% in 2010, for Egypt it has increased initially from 1.81% to 1.99% and then decreased to 1.69% in 2008. Hence, it is clear that in Tunisia the number of poor people has declined sharply in the last decade. In Egypt, as the national poverty line is higher than the 1.25 USD a day threshold, some people have moved from a condition of super poverty, less than 1.25 USD a day, to a more favorable one. But a greater number of people, initially having a medium income level, has seen its economic conditions dramatically deteriorate, with the result that they are now part of the poor group. Obviously, in order to offer a better understanding of such process and to more precisely assess its scope, a comparison with demographic measures will be presented.

Income distribution

The Gini index (World Bank data) provides some information concerning income inequality in the countries under analysis. It should not be startling the fact that over the last 20 years Egyptian society has always shown a more equal income distribution than the Tunisian one, because of the extremely different population sizes characterizing the countries we are comparing. However, data show that for Tunisia such measure has increased from the 2000 level of 0.4081 to 0.4142 in 2005, and then decreasing to 0.3606 in 2010. In Egypt the Gini coefficient has kept falling: it was 0.3276 in 2000, 0.3214 in 2005 and 0.3077 in 2008. So, notwithstanding income inequality is decreasing without

the perturbations occurred in Tunisia, the net effects indicates that it has decreased more in Tunisia than in Egypt since 2000.

Unemployment

Table X reports data on unemployment according to the World Bank dataset for the period 1990-2010. During the 1990s unemployment in Tunisia has kept steady around a 16% level. In the same time window, it resulted more unstable in Egypt, following an increasing trend for the first half of the decade, and then declining. The overall average however was lower than in Tunisia, around a 9-10% level. Starting from 1999, to 2005, the two countries of interest have followed diverging trajectories: unemployment in Tunisia has started falling, while in Egypt it has increased considerably. Subsequently, this measure has declined in both countries until 2008 and the outbreak of the world financial crisis. What emerges from these figures is that, even though both countries have experienced a sustained growth before the global recession, Egyptian government failed to reduce the amount of unemployment beyond the level of the beginning of the decade, while Tunisia was more successful in this respect.

Prices

In the analysis of the economic determinants of the Arab Spring wave of protests, an important part is attributed to the rise of food and energy prices occurred in the second part of 2010, as Joffé reports (2011). Figure X displays the evolution of a food price index, together with the prices of sugar, oils and cereals according to FAO data, while Figure X+1 shows the price of crude oil over time (US Energy Information Administration). Obviously these products represent a great portion of consumption profiles and such extraordinary increase in their costs implies that the purchasing power of families has suffered a substantial drop in the aftermath of the global financial crisis. World Bank data provide also the time series of a general inflation measure for both countries, which is reported in Figure X+2. Egypt, since 2000, has been characterized by a great

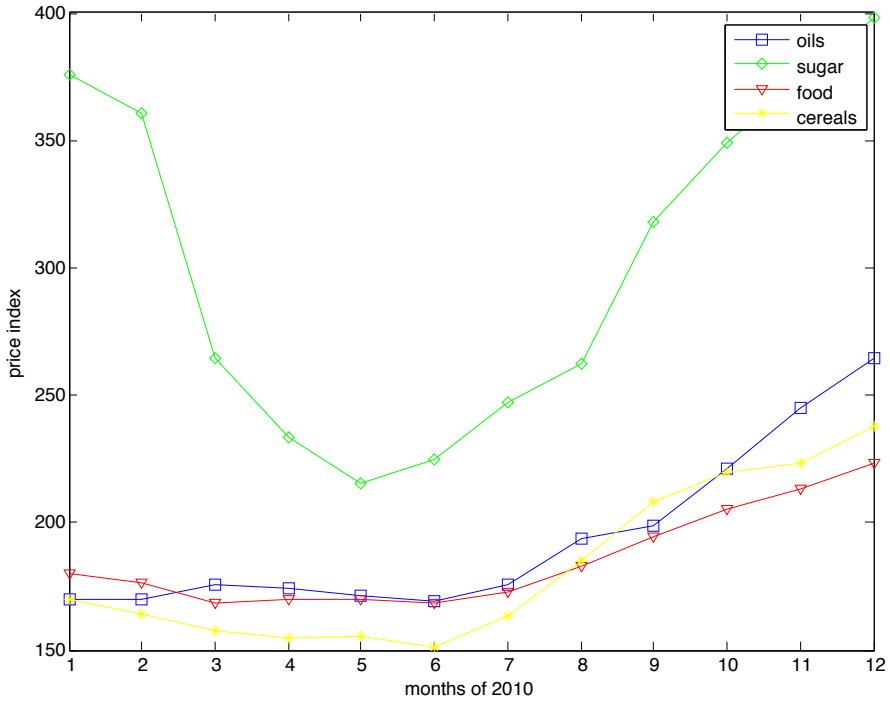

Figure 1: FAO monthly food price indices in 2010

variability and very high rates, reaching a peak of 18.32% in 2008. Tunisia instead, has maintained inflation always under a 5% level, even after the beginning of the world recession.

4.2 Discussion

The analysis of macroeconomic indicators offers a puzzling description of the overall economic circumstances in which the Arab Spring upheavals have taken place. On the one hand, the information given by the income trend is unquestionable: Tunisia and Egypt in the last 20 years have followed a solid and uninterrupted path of economic growth, at least in its narrow sense. On the other hand various measures of poverty, income inequality, unemployment and prices shed some doubts on the real well being conditions of the population.

For what concerns Tunisia, poverty and income distribution statistics suggest that, at the dawn of the new millennium, it presented a highly unequal society and a great

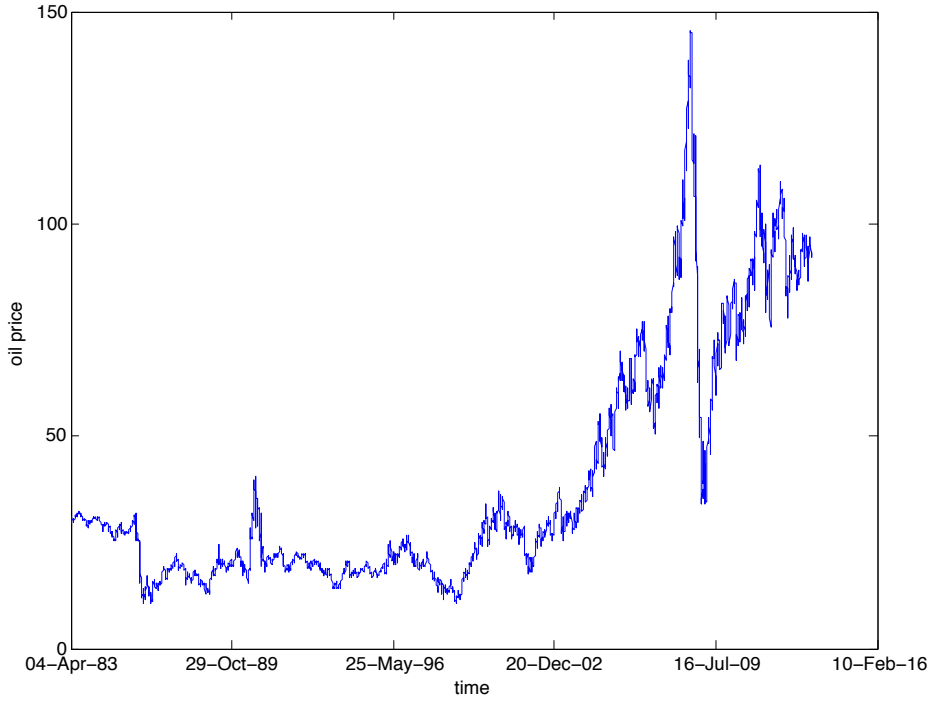

Figure 2: Cushing, OK crude oil future contract

proportion of the population lived under the national poverty line threshold. Moreover, throughout the 1990s, the level of unemployment remained steady at a very high level, 16%. Nevertheless, these critical conditions improved in some measure starting from 2000 until 2008, so that Tunisia seemed to have solved part of its problems or at least to have entered in the right development path before the outbreak of the world financial crisis. Data tell us not only that Tunisian income distribution has become more even, but also that poverty has substantially decreased. Therefore, the picture that emerges by matching this information with the evidence on income growth is a widespread enrichment of the whole society, and of the lower strata in particular. Haggard and Kaufman (1995) suggests that economic growth, by reducing inequalities within society, has a moderating effect on distributional conflicts between different segments of the population. Furthermore, the development of a homogeneous middle class prepares the ground to the diffusion of capitalist and democratic values.

One of the reasons behind this success is the adoption of several economic reforms by

the autocratic government, in the spirit of the Washington Consensus neoliberalism, in order to foster the development of Tunisia and attract capitals from commercial partners and foreign countries. This season of reforms entailed an unprecedented stimulus to private initiative, an improvement of the economic freedoms of the population, a general enhancement of economic opportunities. As a consequence of these gains, the World Economic Forum 2008/2009 report ranked Tunisia first in competitiveness among African countries, with a score higher than many European economies in the international ranking. The increased space of maneuver granted by the state to Tunisian population was accompanied by some concessions and a reduction of the imposed restrictions to political life participation. At the same time, episodes of popular discontent were repressed with violence and national media never spread the news. The result is that the Ben Ali regime could be considered a liberalized autocracy. Anyhow, the consequences of the world recession, the increasing inflation, but also the diffusion of a Wikileaks report on the corruption activities imputed to the family of the regime leader have contributed to compromise this improving economic and political environment.

The story of Egypt is different in many aspects. In 2000 Egypt presented an income distribution less unequal than that in Tunisia. Even so, the situation has not changed much in the following years. Furthermore, data on poverty are alarming: despite the increasing income per capita, the number of people under the national poverty line has been growing before the outburst of the Arab Spring. An increasing headcount ratio and an almost steady Gini coefficient imply that, keeping the demographic variables constant, Egyptian population is getting poorer. If we add to this scenario the effects of a persistent unemployment and an explosive inflation, we cannot conclude that the living conditions of Egyptian population have improved, as the Tunisian experience displays. Clearly this means that we have to revaluate the importance of economic contingencies over other factors in the identification of the main determinants of the Arab Spring revolution in Egypt. At the same time, other questions arise urgently: where did the resources generated by the flourishing economy go? Who has benefited

from this situation?

Similarly to what happened in Tunisia, starting from the Gulf War, Egyptian government has undertaken a process of reorganization of the economic activities, in order to reduce the inefficiencies, foster the competitiveness and attract foreign investments in the increasingly globalized world market. Income growth statistics indicate that it was successful in this task. An example of this process is the substantial privatization of a number of firms previously under state control, especially in the heavy manufacturing sector. But also taxes cuts, trade liberalization for some goods, reduced price controls, all correspond to a general attempt to transform Egyptian economy into a more market-oriented one. Nonetheless, the regime dramatically failed in distributing the fruits of the growing level of activity among the population, as large segments of the society were excluded from the division of profits. Essentially, while poor remained poor, rich got richer. It is very likely that a great amount of resources were drained by the heavily bureaucratic state apparatus, and corruption, present at every stratum of society, has contributed to fuel sentiments of frustration and alienation increasingly widespread among the population. An economy incapable of involving the whole society in its modernization process is responsible of widening the inequalities present between different classes, exacerbating the distributional conflicts. Obviously these are not the symptoms of healthy social cohesion, a necessary precondition for the emergence of a civil society inspired by democratic values.

4.3 The Arab Spring as a test of theories on democratization

As highlighted in the first part of this thesis, the theoretical framework set up by Acemoglu and Robinson (2001, 2006) provides some implications that can be tested empirically to see what are the predictions of the model with regard the Arab Spring political transitions. Furthermore, the analysis of the developments in Egypt and Tunisia offers the possibility to test whether this model correctly identifies the economic (and non-

economic) drivers of this kind of democratization. Acemoglu and Robinson include as an important element in their framework the effect of negative shocks to total production. Rainy days serve as stimuli for each group, the rich and the poor, to promote actions towards the establishment of their favorite political regime. A negative income shock in a authoritarian rule decreases the cost opportunity for the poor of setting up a revolution. The duration and the entity of this negative shock are among the main parameters that shape the likelihood of each possible equilibrium of the game. It is important to recognize that the shock is not per se a reason to promote a revolution: the poor would revolt in order to choose their optimal tax rate also in favorable economic conditions, but they just do not find it convenient because a rebellion is costly, as it implies the destruction of some of their resources. An income shock alters the trade-off conditions between the future advantages of democracy in terms of redistribution of resources and the costs of a revolution. This aspect of the model seems to be consistent with the determinants of the Arab Spring in Egypt and Tunisia. The consequences of world financial crisis and the spike in food and energy prices correspond exactly to an economic shock affecting the cost opportunity of fighting for freedoms and concessions: they are the triggers of wave of protests rather than the fundamental and long-lasting reasons of popular discontent. Joffé (2011) gives a similar interpretation to the impact of the global recession and to the rise in prices in the transition process, emphasizing the centrality of political reasons and freedom issues behind the violent opposition to the regime.

Moreover, Acemoglu and Robinson, in the determination of the different possible outcomes of the conflict between the elite and the poor groups, attribute a crucial role to income inequality. The distribution of the only production factor affects the stability of democracy and the incentive for the elite to mount a coup. In particular, a high level of inequality is associated with an equilibrium characterized by a continuous oscillation between democracy and autocracy. This implication of the model allows us to test its predictive power with respect to the cases of Tunisia and Egypt. Headcount

ratio and Gini coefficient data show that Egypt and Tunisia societies have moved in different directions since 2000: without referring to value comparisons, which inevitably neglect the demographic component, but by focusing on trends and changes over time, we observe that in the years preceding the Arab Spring outbreak, while Tunisian society has become richer and more even, Egyptian society has suffered from worsening living conditions, increasing poverty and inequality among the population. In this regard, the model of Acemoglu and Robinson predicts that the young democracy in Egypt is more exposed than the one in Tunisia to the risk of coups and returns to an authoritarian regime. The same conclusion, though justified with extremely different reasonings, is drawn by Joffé in his analysis of the political determinants of the Arab Spring. Surprisingly, also the study of the demographic dimension will provide a confirmation of the higher instability associated with the transition occurring in Egypt.

Obviously, the model by Acemoglu and Robinson is only a stylized representation of the strategic interaction of different actors behind a political transition and its main purpose is to capture only some aspects, for example the distributional conflict between classes, of a more complex phenomenon. As a consequence, it does not take into account for instance the importance of demographic factors, the complexity due to the presence of several groups with different interests and incentives, the coordination problem of setting up a revolution. However, the true limits of this model reside in its own nature: it is an economic model, made of incentives, preferences, payoffs and equilibria. It means that it provides the interaction mechanisms that induce different actors to pursue different objectives and fight over the allocation of resources. A democracy implies that the tax rate is chosen by the median voter, who, being poor, will impose higher taxes on rich people. On the contrary, under an autocratic regime, the rich enjoy a more favorable distribution of resources. So, a political regime is characterized only by the subject who takes the decisions about the distribution of wealth.

But a democratization involves, as a phenomenon, the entire culture of a country. It does affect the allocation of resources, which means that individuals promoting democ-

racy do it for economic reasons. Yet, it would be disadvantageous to neglect the importance of political factors, the population's hopes of economic, political and social freedoms and the respect of their civil rights. Many, among the Arab Spring protestors, were moved by the frustration of facing scarce economic opportunities and challenged the regime to obtain the political power to change their worsening conditions. The wave of upheavals was an attempt by different strata of the society to raise their voices, so far unanswered, against the stagnant status quo, the deprivation of civil freedoms, to fight the injustices perpetrated by the old authoritarian rule.

5 The impact of the demographic structure

If we were police detectives and we had to draw the social profile of the typical protestor, we would identify him as a male, liberal, muslim, quite educated low-middle class citizen that is connected to the internet through which he has access to the western culture and to news and information instantaneously.[1] While this identikit perfectly describes one typical type of protestors, it fails to capture the true dimension of variety of people actively involved in the demonstrations: the success of the Arab Spring was due to the vast involvement of every stratum of the society in the riots - from the unemployed to the workers, from the journalists to the media, from the old to the military. Its scope has extended to the female population, which has participated as actively as the male one. In the following, we will outline the demographic dimension, more precisely the implications of the youth bulge theory, in the analysis of the stimuli and outcomes of the Arab Spring in Egypt and Tunisia.

5.1 The youth bulge theory

By looking at the demographic descriptive statistics of the two countries under study, we identify, among the others, a key factor that seems to be particularly interesting for

[1] For an analysis of the impact of education on the Arab Spring, see [12] and [21]

our analysis and to play a relevant role in the ongoing process: what demographers call a *youth bulge*.

A *youth bulge*, developed by sociologist Gunnar Heinsohn [25] and subsequently elaborated by political scientist Gary Fuller [20] and sociologist Jack Goldstone [22], is the phenomenon of an extraordinary crowding of the male population around the 15-29 cohort. This is generally associated with problems of social unrest, uprisings and political turmoil as this excessively dilated cohort exerts political and social pressure on the labour system whenever the demand and supply of the labour market do not match. Countries with weak political institutions are particularly vulnerable to youth-bulge-related violence and social unrest. A youth bulge typically occurs in countries experiencing a demographic transition, that is, a shift from high fertility rates to low ones. Such transitions lead to prolonged reliance of sons on their families which creates financial deficits on the household level. Sons inherit a smaller share of the household's wealth as the heritage is split up among a larger number of descendants [10]. As a consequence, we observe migration of young workers from rural to urban areas driven by the hope for better job opportunities and social prospects. This development bears a number of problems as Fuller points out:

"If societies lack the social infrastructure to integrate, employ and care for a growing population, the potential demographic benefits of a youthful population instead become a serious drain on the resources of the state and form a dangerously unstable element within society".

If urban centers are not prepared, in terms of infrastructure and labour market opportunities, to absorb the influx of young males migrating from rural areas, their presence constitutes a threat to the social order. As a consequence, every possible demonstration, every popular event can serve as a catalyst to express the widespread discontent as the very recent episodes in Turkey have proven.

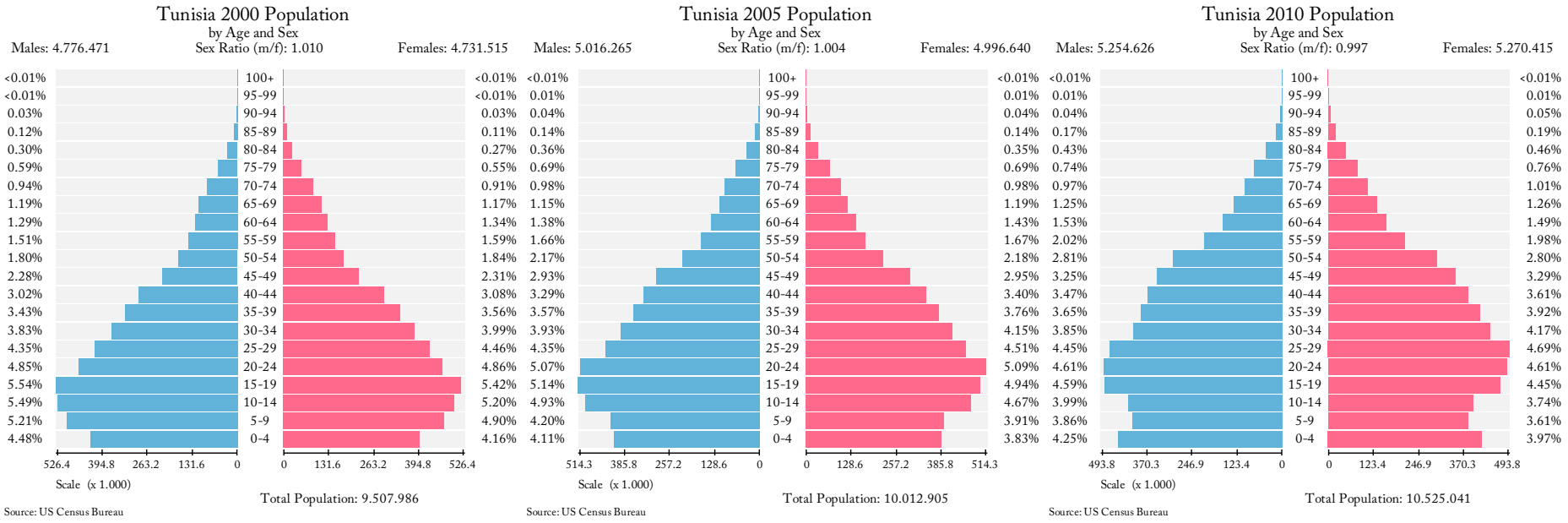

Figure 3: Demographic evolution in Tunisia, 2000-2010

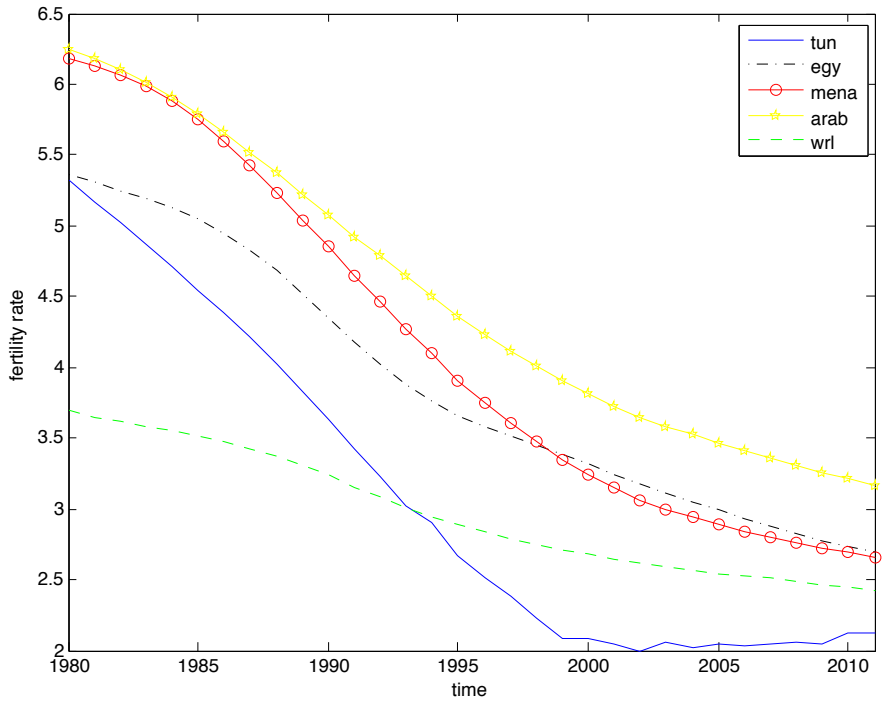

Figure 4: Fertility rates

5.2 Tunisia

Data from the US Census [41] on the age distribution of the Tunisian population are reported in figure 3. We observe that population has increased from 2000 but fertility rates have decreased in that period as the 0-4 cohort density trend shows. World Bank data confirm this evidence as shown in figure 4. Tunisia seems to undergo a demographic transition: the fertility rate in the country has been higher than the world average for a long time. Up to the 1990's, when the falling rate has reached the world level and continued to decline. Also, the mortality rate has been decreasing at an even faster pace. The impact of such dynamics on the population structure is illustrated in figure 3. The transformation of the shape of the pyramid over time discloses some important demographic characteristics in line with the theoretical implications: for 2000, there is discernible a swelling for the 10-14 and the 15-19 cohorts, which correspond to the 15-19 and the 20-24 cohorts in 2005 and to the 20-24 and the 24-29 cohorts in

2010. These cohorts perfectly coincide with the age group most actively involved in the revolts during the Arab Spring. In accordance with the previously delineated youth bulge theory, we find that the demographic structure of the Tunisian society plays a key role in comprehending the Arab Spring. Young people between 15 and 29 years old accounted for around 29.48% of the whole population in 2000, 29.1% in 2005 and 27.4% in 2010. The corresponding median ages are: 24, 27 and 29.

Compatible with a classification commonly applied among demographers [15], a population structure is considered youthful if the median age is lower than 25. It is considered intermediate when the median age is between 25 and 35, and finally mature if the median age is greater than 35. The data highlight that in the last 13 years, Tunisia has moved from a youthful to an intermediate stage. That implies that the population is aging, that is, it is likely that the youth bulge is going to dissipate in the next decade. According to the theory, this development comes with positive implications for the future stability of the country. The effect on the democratization, however, is ambiguous. The youth bulge theory does not predict that the excessive presence of the 15-29 cohorts favors a specific political system, but only that it increases the likelihood of turmoil and instability. Nonetheless, judging by the recent political developments, we ascribe Tunisia relatively high chances to consolidate its unfinished democratization.

5.3 Egypt

Overall, the situation in Egypt is similar to the one in Tunisia. Nonetheless, we identify some peculiarities that incorporate important implications for the future prospects of the ongoing political transformation.

First of all, Egypt is the most populous country in the Middle East and the third-most populous one on the African continent (after Nigeria and Ethiopia). The fertility rate, though decreasing over the last 30 years, is still higher than the world average and the Middle East and North Africa region levels. Also, the mortality rate has been falling

so, despite the effect of migration flows, the population is growing at high rates, that is around 2% on an annual basis. Figure 5 displays the corresponding population pyramids for Egypt. Looking at the evolution from 2000 to 2010, we notice that the pyramid has a very large basis. The first cohort, the 0-4 one, is always the most populated one, which is different from what we find for Tunisia in section 5.2. Focusing on the second, third and forth cohort in the 2000 pyramid, we find that the associated shares of the population for the 5-9, the 10-14 and the 15-19 cohorts are almost identical and constant at approximately 11.8% (considering both, females and males). Moving to the 2005 and to the 2010 pyramids, we see that this pattern is persistent. Those between the ages of 5 and 19 in 2000 correspond to those between 10 and 24 years in 2005 and those between 15 and 29 years in 2010 - the core age groups of the Arab Spring protestors. We conclude that, again, we are in the presence of a youth bulge. Over time, the 15 to 29-year-olds accounted for 28.96% in 2000, 29.97% in 2005, 28.57% in 2010. The corresponding median age is 21 in 2000, 22 in 2005 and 23 in 2010. These figures indicate that the population is aging but not as rapidly as the Tunisian is, and furthermore that the population structure can be still considered youthful. US Census Bureau predictions suggest that it will take another year until it reaches an intermediate level. At that point, the median age in Tunisia will be 31. This information suggests that it will take more years for Egypt than for Tunisia to see their respective youth bulges get depleted. Therefore, the associated potential risk of instability a youth bulge bears according to the theory, will be persistently higher in Egypt. The socioeconomic conditions of the 15-29 cohorts will serve as a barometer of the political and social situation in Egypt. Improving them will constitute the main challenge for the future political institutions.

Pushing our analysis forward, we conjecture that the youth bulge not only represents a social problem, but it can also be used as an instrument for different lobbies and elites aspiring to take over the political control of Egypt to pursue their specific interests. As frequent events in history highlight, a successful strategy for a political movement to

obtain the power is to drive the mass consensus towards its ideology using widespread popular sentiments as a leverage. Young people are particularly prone to third party influences since "they are often drawn to new ideas and heterodox relations, challenging older forms of authority" as Goldstone [22] states. Egypt, during the last 60 years has played an important political role in the Isreali-Palestinian contention with important implications for the public opinion. The result is a popular anti-Americanism and also anti-Semitism, fostered by the foreign policy of the Mubarak regime, which was frequently deemed too pro-Western. The frustrated and dissatisfied young cohorts facilitate the rise of islamist groups such as the Muslim Brotherhood. In this sense the youth bulge is at danger to be manipulated for political objectives and thus constitutes a powerful means for uprising political parties to promote their ideology. In the case of Egypt, we interpret this aspect of the youth bulge as another indicator of the uncertainty concerning Egypt's political future.

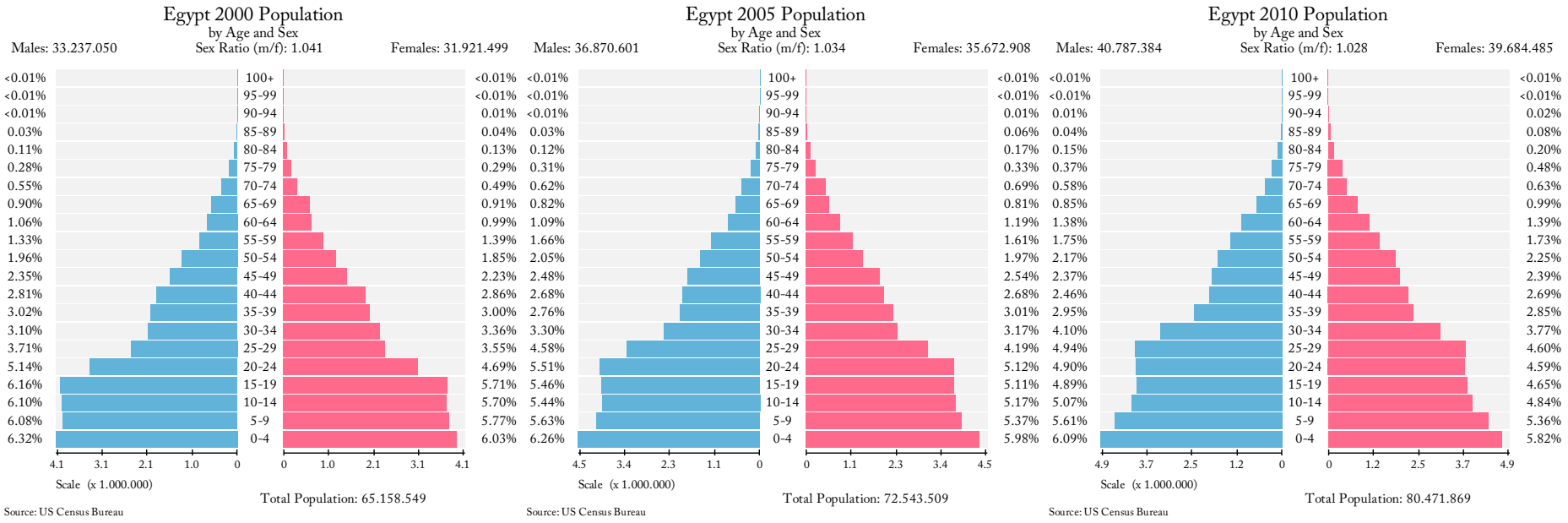

Figure 5: Demographic evolution in Egypt, 2000-2010

Part III

An Empirical Test of the Youth Bulge Theory

The aim of this final chapter is to test empirically the *youth bulge theory* on a sample of 160 countries in the post-World War II period. For this purpose, we adopt an econometric strategy alternative to the one prevailing in the literature on the determinants of civil conflicts: we employ a simple linear regression model which accounts for country and time fixed effects.

Our main finding is a differential effect of the proportion of young people aged 15-29 among the overall population on different proxies of political instability, each one capturing a particular aspect of such a general concept. Surprisingly, the presence of a youth bulge is more strongly correlated with the propensity of a political regime to change than with measures of social unrest and violence. Furthermore, the empirical analysis uncovers a non-linear effect of young cohorts size on the former, indicating the existence of a threshold level above which a further increase in the young cohorts size implies a greater risk of political turmoil.

This chapter is organized as follows: section 6 provides a brief review of the literature concerning the youth bulge theory and the measurement of political instability; section 7 describes the econometric strategy, the data employed and the results. Concluding remarks and ideas for future research are presented in the final section.

6 Literature review

6.1 The youth bulge theory

The youth bulge theory was originally formulated by the social scientist Gunnar Heinsohn in the mid-1990s. Heinsohn [26] recognized how, in the history of many countries, several episodes of violence and social unrest occurred in periods characterized by an extraordinary presence of young generations among the overall population. Such episodes of political transformation include, for example, the rise of the Nazi regime in the interbellum period or the European colonialism during the 18th century. Since the beginning of 2000s, many scholars in social sciences have investigated the origins of terrorism and

a renewed attention has been devoted to the association between the age structure of Arab countries and political violence. Many developing countries, in particular in the Middle-East North-Africa region, have experienced a sudden drop in mortality rates and a less marked decline in fertility rates over the last 30 years. Gary Fuller and Jack Goldstone [19] [23], prominent experts of the youth bulge theory, have linked episodes of political instability and civil conflicts to this specific stage of the demographic transition.

According to this theory, an excessive presence of young cohorts increases the risk of social unrest and political turmoil. The underlying logical rationale goes as follows: the economic difficulties associated with raising many children and having a large family push the offspring to leave the household to seek fortune somewhere else and, in particular, to move from rural areas to urban centers. This is true especially for the youngest sons, those who do not inherit any of family's wealth. The internal migratory flow of young unemployed contributes to the formation of a great urban population. Depending on whether urban areas are able to absorb the suddenly massive supply of labor and provide sufficient infrastructures and accommodation, such a phenomenon may represent a threat to social order. In particular, the inability to find a regular occupation fuels black market businesses, illegal activities and criminality, as means to survive. Therefore, the effect is enhanced whenever this extraordinary mass of young people faces scarce job opportunities, high unemployment and severe economic conditions. The consequence is the development of a fertile ground for episodes of social and political violence. Moreover, a further factor appears to play an important role: an increased level of education heightens expectations and makes the gap between aspirations and the everyday reality unsustainable and frustrating.

The literature on civil conflicts advances two possible explanations for the violence associated with youth bulges: *greed* and *grievance* (Collier & Hoeffler, 2004 [16]). The first perspective focuses on the opportunity of violence: young unemployed people have a lower opportunity cost of joining an armed group because they have no alternative

sources of income and therefore they have nothing to lose. The *grievance* explanation emphasizes the motives related to taking part in a rebellion. Under this view, the political violence and instability caused by youth bulges are justified by the attempt of young generations to fight for political rights and against inequalities, to raise their voices against corrupt and unjust regimes and increase their weight in political decisions. As a consequence, they consider participating to protests a way to express their dissatisfaction and discontent with the status quo. Although these two rationales are independent and alternative, in reality, they seem to share many common features and to have contributed together in several episodes of turmoil. As for the example of the Arab Spring, many reports confirm that the incredible mass protesting against the long-standing autocratic dictatorships was a diverse mix of people with different backgrounds and with different objectives.

Collier & Hoeffler (2004) perform an econometric analysis to determine which motive, *greed* or *grievance*, better accounts for the initiation of 79 civil conflicts occurred between 1960 and 1999 in 161 countries. As the different motives cannot be observed directly, their incidence on the onset of civil wars is estimated by including variables which are generally associated with them. Thus, economic indicators are used to study the weight of profit-seeking behaviors while political and inequality measures account for grievances. On the one hand, the authors proxy the opportunity for financing a rebellion, the low costs of joining it and the costs of arming with extortion of natural resources, donations from diasporas and subventions from hostile governments, mean income per capita, average years of schooling, lagged income growth rates and peace duration. Moreover, they consider also the impact of social cohesion, given by a measure of ethno-linguistic fractionalization, which is regarded as a possible determinant of the unity and therefore of the strength of an armed group and, as such, increases the costs of fighting. However, in this context, the use of ethno-linguistic fractionalization can be misleading as it could be interpreted as an instrument for the grievance explanation: the presence of many ethnicities and religious groups constitutes a threat to political

stability if the interests of different minorities are not pursued and respected by the central authority. On the other hand, the variables considered to measure the impact of grievance are ethnic polarization, political repression (given by the Polity score) and income inequality. The results of the logit regression, where the dependent variable is 1 if in the country-year dyad there was the onset of a civil conflict, point to the greater explanatory power of the variables related to the opportunity hypothesis over the ones associated with the grievance motive. When the proportion of young aged 15-29 among the overall population is added to the regression model, it is not significant.

The research question, the data and the interpretation of results of this contribution are revisited by the same authors in Collier, Hoeffler & Rohner [17](2009). Here the focus moves from the dichotomy greed/grievance to the dichotomy feasibility/motivation. According to the feasibility hypothesis, a civil conflict is initiated independently of motivation and whenever the necessary conditions occur, e.g. whenever it is materially feasible. Although the substantial update of the data on episodes of wars affects the outcome of the analysis, the econometric methodology adopted is analogous to the previous work. However, among the variables that now have a significant effect on the onset of civil wars there is also the proportion of young males aged 15-29, and this seems to confirm the youth bulge theory. Nevertheless, when country fixed effects are introduced in the regression model as a robustness check, the impact of youth bulges fades away. The authors explain this result as a consequence of the fact that the proportion of specific segment of the population varies slowly over time and variation is mainly due to cross-country differences. Hence the inclusion of country fixed effects absorbs this effect and suggests that cross-country differences in terms of demographic structure are driven by long-run determinants.

While both articles by Collier & Hoeffler explore a broad set of causes of civil conflicts, Urdal [40](2006) concentrates specifically on the impact of youth bulges on political violence. Several hypotheses regarding the youth bulge theory are tested:

- countries that experience youth bulges are more likely to experience political vio-

lence than countries that do not;

- the higher the dependency burden, the stronger the effect of youth bulges on political violence;
- the lower the economic growth, the stronger the effect of youth bulges on political violence;
- the greater the expansion of higher education, the stronger the effect of youth bulges on political violence;
- the more autocratic a country, the stronger the effect of youth bulges on political violence;
- the higher the urbanization rates, the stronger the effect of youth bulges on political violence.

The analysis by Urdal differs from the one by Collier & Hoeffler in many regards. First of all, rather than using uniquely the onset of a civil conflict as a dependent variable, Urdal studies the effect of youth bulges on two further forms of political violence, riots/demonstrations and terrorist attacks. The purpose is to study the incidence of youth bulges also on low-intensity violence episodes. The econometric model employed for the civil conflicts is a logistic regression, while for the specification with riots and terrorism the author runs negative binomial regressions. Secondly, the data for domestic conflicts comes from a different source. Thirdly, Urdal imputes the scarce significance of the coefficient on the youth bulge term in Collier & Hoeffler (2004) to the choice of a flawed measure for it. In particular, Urdal proposes to employ the ratio of young aged 15-24 over the population aged 15+ rather than the proportion of young aged 15-29 in the total population because the actual perception of the presence of a youth bulge can be biased if fertility rates remain relatively high and therefore the bulge persists over time. Furthermore, if the 0-15 cohorts are exceptionally dense, the actual weight of people aged 15-29 in the total population may result quantitatively small, giving a wrong

information on the real entity of the bulge. The empirical analysis, which involves 193 conflict onsets in the 1950-2000 period for all countries with an estimated population of at least 150000 in 1995, uncovers a significant effect of youth bulges, robust across different specifications, on civil conflicts. Interestingly, the youth bulge coefficient is significant only when the measure adopted is the one proposed by Urdal. All the other hypotheses concerning the interactions of youth bulges with economic growth, education, strength of political institutions and urbanization find no support. The model for riots/demonstrations leads to the same conclusions, while the specification for terrorism events shows that also the interaction terms of youth bulges with tertiary education and economic growth are significant.

The aim of this work is to employ an alternative econometric strategy to test the effect of youth bulges on different dimensions of political instability, which range from low-intensity forms of violence, such as riots, demonstrations and strikes, to major armed conflicts and political transformations. This project builds on the existing and presented literature in several regards: the main hypotheses tested correspond substantially to the ones already listed in Urdal (2006). However some modifications are introduced: rather than employing a logit model, we test a simple specification including country and time fixed effects.

The logit models tested in the literature, having as a dependent variable a binary taking value 1 if in the dyad country-year there was the onset of a civil conflict, do not take into account unobserved time-invariant country specific characteristics which may have an effect, such as culture or religion. Thus, they are potentially affected by omitted variable bias. The aforementioned contributions do not include country dummies in their specifications because their use is not convenient in the presence of a dichotomous dependent variable taking value 1 in a small amount of country-year dyads (Beck & Katz, 2001[9]). This is exactly the case, since the onset of a civil conflict is a relatively rare event. In particular, the inclusion of country fixed effects makes insignificant all the coefficients associated with the other explanatory variables, which are time-varying,

for all the "pacific" dyads, i.e. for all the countries where there was no conflict onset in the period under analysis. The consequence is that the inclusion of country dummies comes at the price of excluding from the sample all those "pacific" dyads in which the time variation of the other regressors has no effect on the probability of having a conflict and which constitute a great part of the sample.

Furthermore, this project distinguishes itself from the existing literature in that it makes use of a broader set of variables acting as proxies for different dimensions of political instability, whose main source is the Cross-National Time-Series Data Archive [6], compiled by Databanks International. In this regard, the objective is to verify whether youth bulges affect different forms of political violence in a different way, and, specifically, whether they have a greater impact on large scale events like revolutions, civil wars or coups d'état than on low-intensity violence episodes like riots, demonstrations, strikes and political assassinations. Therefore, the next subsection is dedicated to the literature on political instability and its measurement.

6.2 On the measurement of political instability

Several publications in many research fields investigate how the political instability of a country is related to investment, economic growth, financial development or economic inequality. A common issue among these studies is the measurement of political instability, which is a broad concept and is not directly observable. Many authors have focused on individual measures of political instability, like the number of assassinations of political leaders (Barro, 1991[7]), while others have constructed an index of political instability derived from principal components analysis.

Alesina & Perotti (1996 [5]) identify two possible aspects of political instability. The first one stresses executive instability, or the propensity to observe government changes, which may be constitutional or unconstitutional. The second one deals with phenomena of social unrest. They focus on the second interpretation and construct the SPI, a single index of socio-political instability, applying the method of principal components

to 5 variables: the number of politically motivated assassinations, the number of people killed in conjunction with phenomena of domestic mass violence, the number of successful coups d'état, the number of attempted but unsuccessful coups, and a dummy for whether the country is democratic or not.

Campos & Nugent (2002 [13]) follow the distinction made by Alesina & Perotti and calculate two different indices for socio-political instability, one which corresponds to the SPI index, accounting for severe forms social chaos, and the other derived from some indicators of the Polity dataset, capturing the competitiveness, level of regulation and the constraints on the executive of the political system. As expected, the two measures tend to be positively but not too strongly correlated since they focus on different aspects of instability. Interestingly, the only exception is the Middle-East North African region, where the correlation is really low. However the distinction between the two dimensions of instability is made *a priori* and is not derived empirically.

As it is argued by Jong-A-Pin (2009 [31]), political instability is not a one-dimensional concept. He performs an exploratory factor analysis using 26 indicators of political instability for 128 countries in the 1984-2003 period in order to extract a small set of factors which explain the common variation. Four dimensions of political instability are identified and are denominated according to their correlation with single indicators of social unrest: the first factor, which is associated with political violence and warfare, is called politically motivated aggression; the second, related to collective mobilization, is mass civil protest; the third is labeled instability within the political regime since it is correlated to changes in the chief executive; the fourth instability of the political regime as it corresponds to major constitutional changes and coups d'état.

7 Econometric analysis

7.1 Strategy

One of the common features of the empirical literature on the determinants of conflicts is the use of logistic regressions. As argued above, in this type of models it is generally not a good idea to account for time-invariant country characteristics by including country dummies because the onset of a civil conflict is a relatively rare event. The solution is to include variables, which can also be slowly changing over time, capturing this country specific features. However, there is a potential for omitted variables bias if not all the relevant explanatory variables are included in the specification and these are correlated with the regressors.

In this project we adopt an alternative approach: we test a simple linear regression and we address the problem of unobserved time-invariant country characteristics by including country fixed effects, which account for historical and political factors affecting political instability. Moreover, we add also time fixed effects to account for common trends and shocks. The use of country and time fixed effects is not, of course, a *panacea* (Acemoglu, Johnson, Robinson & Yared, 2008 [1]) and bears some risks. In particular, the inclusion of slowly changing regressors, as, for example, the level of democracy, is problematic since it is likely that their coefficients will be not significant because of the presence of country dummies. As a consequence, and in order to remove measurement errors, we construct 5-year data averages and we repeat the empirical exercise with 3-year and 10-year time windows as robustness checks.

Secondly, although fixed effects reduce the problems associated with the omission of country specific characteristics which are time-invariant, they have no effect on the potential bias due to unobserved time-varying variables, which constitutes the main issue for the validity of estimates. Nonetheless, the Least Square Dummy Variable (LSDV) estimator has some advantages: it allows to account for unobserved time-invariant country specific characteristics as it exploits only within country variation

and, under the assumption that unobserved variables are time-invariant, it is consistent. Furthermore it is a rather severe test for the coefficients of slowly changing variables, like the level of democracy or country demographics.

The core regression for this analysis is the following:

$$Y_{i,t} = \text{const} + \lambda_i + \theta_t + \alpha YouthBulge_{i,t} + \delta \log(Pop_{i,t}) + \beta Dem_{i,t-1} + \gamma \log(GDP_{i,t-1}) + \epsilon_{i,t} \quad (1)$$

where the dependent variable $Y_{i,t}$ is a proxy of political instability, the regressors are the proportion of people aged 15-29 among the overall population, the log of population, the lagged level of democracy or regime type, the lagged level of GDP per capita in log terms. Finally, λ_i and θ_t are respectively country and year dummies, and $\epsilon_{i,t}$ is an error term.

The coefficient of interest for this analysis is α, which gives the effect of youth bulges on political instability. A positive and significant coefficient means that a higher proportion of young cohorts increases the political instability of a country and would give support to the youth bulge theory. We expect γ, the coefficient for the lagged value of GDP per capita in log terms, to be negative, under the perspective that a greater income per capita relaxes distributional conflicts and political violence. The parameter δ is expected to be positive but quantitively small, since bigger countries and populations are more prone to episodes of social unrest. Standard errors are clustered at country level.

We subsequently include squared terms to check the presence of non-linear effects: political instability seems to be particularly low at the extremes of the democracy scale, i.e. in strongly democratic and autocratic countries, while it is more pronounced in newly established democracies and in liberalized autocracies. Moreover, other variables and interaction terms are added to the specification to test their impact on political instability and to verify that the coefficient on youth bulges remains significant. Therefore, we study the effects of urbanization, education and their interaction with the

proportion of young cohorts to test the hypotheses that higher urbanization rates and higher education enhance the impact of youth bulges on political instability.

7.2 Data

We dispose of an unbalanced data set of 160 countries for the period 1950-2010. Population data comes from the United Nations Population Division [37] and is available also for age and sex groups. We compute the ratios of people aged 15-29 over the total population, as in Collier & Hoeffler (2004) and over total population aged 15+, as in Urdal (2006).

The measures for the level of democracy are the composite Polity2 index from the Polity IV project [14] and the Political Rights and Civil Liberties indices from Freedom House [28]. The composite Polity2 measure is obtained by subtracting the Autocracy score from the Democracy Score for each country in each year. It ranges between -10 (absolute autocracy) and 10 (perfect democracy). Both Freedom House's Political Rights and Civil Rights indices range between 0 (perfectly democratic institutions) and 7 (absolute autocracy) and their average is usually used as a unique indicator, the Freedom House index. The composite Polity2 index and the Freedom House index differ in some regards: the former is increasing in the level of democracy, the latter assigns lower scores to more democratic countries. Moreover, the Polity2 index is also available for the pre-war era, while the Freedom House index has been compiled only since 1972.

The first variable employed as a proxy of political instability is the standard deviation of the Polity2 index in the 5-year time window. Intuitively, the greater the variability in this index, the greater the political instability in the country. However some countries, characterized by scarcely democratic institutions and frequent episodes of political violence, keep low and persistent scores for the level of democracy. Then the 5-year standard deviation of the Polity2 index for these countries, being close to 0, hardly reflects such social and political turmoil. In practice, we face again the double nature of the political instability concept, which was already recognized in Alesina &

Perotti (1996): it can be interpreted as the propensity of a regime to change (and in this sense the standard deviation of the Polity2 index can be informative), but also as politically motivated violence. In order to capture the latter, we employ many variables accounting for different forms of political violence, which vary from large-scale events like revolutions, to low-intensity episodes like strikes or demonstrations, which are available in the Databanks' Cross-National Time-Series Data Archive and have been used also in Jong-A-Pin (2009). In particular, we dispose of time series, for most of the countries, of: political assassinations, strikes, guerrilla warfare, major government crises, purges, riots, revolutions, anti-government demonstrations, coups d'état, major constitutional changes, major cabinet changes and changes in effective executive.

Data on urbanization rates and average years of education (primary, secondary and tertiary) for the 15-29 age group (Barro, Lee) is obtained from World Bank [42]. Finally, GDP per capita in PPP data comes from Heston, Summers & Atten [27].

Tables 1 to 4 are snapshots of the world excluding China and India in 1975, 1985, 1995 and 2005. Descriptive statistics of the main variables of the analysis, weighted for the population, are reported in two groups of countries: those with a Polity2 score lower than 0, and those with a Polity2 score greater than 0. The value 0 corresponds to a situation where the Democracy score is equal to the Autocracy score in the Polity IV project data set. The evolution of these descriptive statistics is informative of the macro processes that have taken place over the last 40 years. More democratic countries are characterized by higher levels of GDP per capita, urbanization and education. What emerges is that several countries have moved from the former to the latter group, suggesting that many of them have undergone a democratization process. Most of these political transitions have occurred in the 1985-1995 decade and such stylized fact is reflected by the statistics for the group of more democratic countries: the average level of GDP declines and its standard deviation increases. The proportion of young people aged 15-29 among the overall population increases over time in the group of less democratic countries, as many of these overcome the 0 threshold in the Polity2 score, while

Table 1: Descriptive Statistics - 1975

	Polity2 ≤ 0			Polity2 > 0		
Variable	Mean	SD	N	Mean	SD	N
Youth Bulge$_t$	25.99	1.42	90	25.28	2.06	43
GDP$_t$	3548.88	3552.23	81	14118.15	7706.12	43
FHI$_t$	5.57	0.93	90	1.94	1.25	43
Urbanization$_t$	39.65	21.59	90	62.81	19.67	43
Schooling$_t$ (15-29 age group)	5.07	2.78	75	8.50	3.07	41

Table 2: Descriptive Statistics - 1985

	Polity2 ≤ 0			Polity2 > 0		
Variable	Mean	SD	N	Mean	SD	N
Youth Bulge$_t$	26.74	2.22	85	25.74	2.88	49
GDP$_t$	2880.84	3027.55	76	16365.52	9665.13	49
FHI$_t$	5.64	1.11	85	1.86	1.15	49
Urbanization$_t$	39.83	20.90	85	67.43	15.37	49
Schooling$_t$ (15-29 age group)	6.14	2.82	67	8.99	2.63	48

it decreases only slightly in the group of more democratic countries. This pattern is consistent with the idea that one of the preconditions to adopt more democratic institutions is having a more mature age structure. At the same time, it means that those countries that currently have a Democracy score lower than the Autocracy one are still at an intermediate stage of the demographic transition, and it will take several years to observe their youth bulges fade.

7.3 Results

The first proxies of political instability we examine are the 5-year standard deviations of the two measures for the level of democracy. Table 5 summarizes the results: the first column displays the estimates when we use the standard deviation of the Polity2 index.

Table 3: Descriptive Statistics - 1995

	Polity2 ≤ 0			Polity2 > 0		
Variable	Mean	SD	N	Mean	SD	N
Youth Bulge$_t$	27.61	1.83	62	24.65	3.40	95
GDP$_t$	2924.69	4600.71	60	13660.97	11934	95
FHI$_t$	6.30	0.79	62	2.64	1.24	95
Urbanization$_t$	39.01	16.08	62	61.57	21.62	95
Schooling$_t$ (15-29 age group)	5.88	1.62	45	9.05	2.73	87

Table 4: Descriptive Statistics - 2005

	Polity2 ≤ 0			Polity2 > 0		
Variable	Mean	SD	N	Mean	SD	N
Youth Bulge$_t$	28.77	2.78	51	24.76	4.03	106
GDP$_t$	4036.31	6824.11	49	15073.19	14465.66	106
FHI$_t$	5.69	0.86	51	2.47	1.42	106
Urbanization$_t$	39.48	18.62	51	62.97	20.80	106
Schooling$_t$ (15-29 age group)	6.82	1.90	36	9.41	2.40	94

The coefficients for the country and year dummies are not reported to save space.

Interestingly, the youth bulge term seems to have a quadratic effect on political instability. The estimated coefficients suggest that the dependent variable reaches its minimum when the proportion of young aged 15-29 among the overall population is around 28% and that, for greater values, it increases more than proportionally. We can interpret it as if political regimes are more stable when the population composition is relatively homogeneous, i.e. when the ratio between young and adult is not too small or too large.

Similarly, the average number of years of education enters in a non-linear way in the specification. An additional year of schooling increases political instability when the average number of years of schooling is less than 8. After this threshold, the effect is negative. This result appears reasonable, populations that experience higher levels of education tend to be less exposed to episodes of political violence.

However, the hypothesis that a greater level of education enhances the impact of youth bulges on political instability does not find any support in this regression. Also the level of urbanization and its interaction with the youth bulge are not significant. The coefficients of the Polity2 index and its squared value, which are lagged to avoid problems of endogeneity, are negative and significant as in most of the regressions presented in this work. Therefore we find evidence that countries at the extreme of the democracy distribution are more stable. Finally, the parameters capturing the impact of GDP per capita and the impact of total population on the standard deviation of the Polity2 index have the expected sign, but are not significant.

Table 5: Political Instability = Standard Deviation of Democracy index

	Polity2 Standard Deviation		FHI Standard Deviation	
Youth Bulge$_t$	-0.429**	(-2.25)	-0.0346	(-1.28)
Youth Bulge$_t^2$	0.00752**	(2.14)	0.000524	(1.11)
Schooling$_t$ (15-29 age group)	0.496**	(2.27)	0.0284	(0.59)
Schooling$_t^2$ (15-29 age group)	-0.0310***	(-2.69)	-0.00306	(-1.15)
Urbanization$_t$	-0.0152	(-1.06)	-0.00511	(-1.39)
log(Pop$_t$)	0.267	(0.52)	0.0671	(0.55)
Polity2$_{t-1}$	-0.0564**	(-2.47)		
Polity2$_{t-1}^2$	-0.00598*	(-1.67)		
log(GDP$_{t-1}$)	-0.00803	(-0.03)	-0.0124	(-0.24)
FHI$_{t-1}$			0.180*****	(3.41)
FHI$_{t-1}^2$			-0.0132*	(-1.97)
N	1038		899	
R^2	0.242		0.360	
adj. R^2	0.114		0.228	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.005$, ***** $p < 0.001$

The second column shows the result of the same analysis, where the dependent variable is the standard deviation of the Freedom House index. Surprisingly, in this case, the only significant parameters are those associated with the lagged Freedom House index and its squared value.

A possible flaw of the specification employed, that may undermine the the validity of the results presented in Table 5, is joint endogeneity. On the one hand, a youth bulge may affect the level of political instability. On the other hand, a higher level of political instability may contemporaneously induce young people to migrate to more stable countries. In order to test the predictive ability of the proportion of young people aged 15-29 among the overall population and to rule out problems of reverse causality, we run a regression where all the independent variables are lagged. Of course we have to be careful with the interpretation of results, since we regress the 5-year standard deviation of the measures of democracy on the averages, of all the independent variables, of the previous 5-year time window and the set of country and year dummies. Table 6 shows the outcome: the coefficients on the youth bulge terms are significant also when the dependent variable is the standard deviation of the Freedom House index. In both cases,

the minimum of the regressand is met when the proportion of young people is around 28%. Besides, the coefficients on schooling and schooling squared are not significant anymore, which suggests that this variable has scarce predictive ability.

Table 6: Political Instability = Standard Deviation of Democracy index

	Polity2 Standard Deviation		FHI Standard Deviation	
Youth Bulge$_t$	-0.402*	(-1.75)	-0.0931**	(-2.19)
Youth Bulge$_t^2$	0.00733*	(1.71)	0.00164**	(2.06)
Schooling$_t$ (15-29 age group)	0.271	(1.10)	-0.00105	(-0.03)
Schooling$_t^2$ (15-29 age group)	-0.0169	(-1.25)	-0.00130	(-0.54)
Urbanization$_t$	-0.0303	(-1.54)	-0.00497	(-1.36)
log(Pop$_t$)	0.915	(1.44)	0.126	(0.97)
Polity2$_{t-1}$	-0.0746****	(-2.90)		
Polity2$_{t-1}^2$	-0.00558	(-1.44)		
log(GDP$_{t-1}$)	0.0743	(0.27)	-0.0136	(-0.25)
FHI$_{t-1}$			0.170****	(3.10)
FHI$_{t-1}^2$			-0.0123*	(-1.78)
N	951		899	
R^2	0.259		0.362	
adj. R^2	0.122		0.229	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.005$, ***** $p < 0.001$

The second test we perform involves individual series of indicators capturing politically motivated violence and social unrest as dependent variables and proxies of political instability. They include low-intensity forms of political violence, like riots, strikes, purges, demonstrations, or political murders but also larger scale events like revolutions, coups d'état and guerrilla warfare. The purpose of this second exercise is to explore also the effect of youth bulges on the political instability which is due to public violence. So, we exploit the data available in the Cross-National Time-Series Data Archive. Lastly, we test the effect of youth bulges on major government crises, major constitutional changes, cabinet changes and changes in effective executive which are also available in the same data set.

Tables 7 and 8 report the results of the analysis. As we can observe in the first column of Table 7, not all of these indicators of political violence are affected by the presence

Table 7: Political Instability = different series from the CNTS Data Archive

	Assassinations		Strikes		Riots	
Youth Bulge$_t$	-0.00986	(-1.07)	-0.0606*	(-1.75)	0.287*	(1.83)
Schooling$_t$ (15-29 age group)	0.129*	(1.66)			1.993**	(2.09)
Schooling$_t^2$ (15-29 age group)	-0.00735*	(-1.71)			-0.125**	(-2.42)
Urbanization$_t$	-0.00571	(-1.09)				
log(Pop$_t$)	0.249	(1.06)	0.138**	(2.16)	0.761*	(1.74)
Polity2$_{t-1}$	-0.00377	(-0.42)	-0.000909	(-0.32)	-0.00494	(-0.39)
Polity2$_{t-1}^2$	-0.00241	(-1.54)	-0.000741	(-1.43)	-0.00171	(-0.80)
log(GDP$_{t-1}$)	0.151*	(1.75)	0.0142	(0.48)	-0.135	(-0.57)
Youth Bulge$_t^2$			0.00113*	(1.76)		
Youth Bulge$_t$×Schooling$_t$					-0.0766**	(-2.08)
Youth Bulge$_t$×Schooling$_t^2$					0.00454**	(2.16)
N	1042		1336		1042	
R^2	0.349		0.461		0.363	
adj. R^2	0.242		0.379		0.257	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.005$, ***** $p < 0.001$

of youth bulges. The number of assassinations of political leaders, for example, appears to depend on the level of education and on GDP but not on the proportion of young population or the level of democracy. Similarly, other series show analogous features and are not included in the tables because they do not show any correlation with the population structure. In order to obtain the better the specification, we have started from the regression including all the available independent variables and then proceeded to successively exclude the variables whose coefficients are not significant, but always keeping the regressors of our core regression, i.e. the youth bulge dimension, the amount of population, the level of GDP, the level of democracy and its squared value. What emerges is that youth bulges affect (some of) these different indicators of political instability in different ways: sometimes the the squared term is significant, sometimes the interactions with the level of education or the level of urbanization are.

The number of strikes involving more than 1000 workers is significantly correlated with the proportion of young people aged 15-29 among the overall population and its squared value. Similar to the results presented above, the number of strikes is at its minimum when the proportion of young people is around 27% of total population. The coefficient on the level of population is positive and significant, meaning that strikes that involve

more than 1000 workers are more common among bigger countries. Besides, strikes seem to occur independently of the level of democracy.

Riots instead, show to depend on the dimension of the youth bulge in a more complicated way. In this case, the level of schooling plays an important role. The marginal effect of an increase of the proportion of young people on the number of riots does not depend only on the level of schooling, but also on its squared value.

Table 8: Political Instability = different series from the CNTS Data Archive

	Revolutions		Coups D'état		Constitutional Changes	
Youth Bulge$_t$	-0.0410	(-1.12)	-0.00943*	(-1.74)	-0.0264**	(-2.02)
Schooling$_t$ (15-29 age group)	-0.0114	(-0.16)			-0.00250	(-0.07)
Urbanization$_t$	-0.0205**	(-2.32)	-0.00484**	(-2.50)	-0.00939**	(-2.12)
Youth Bulge$_t$×Schooling$_t$	0.000228	(0.08)			0.000357	(0.29)
Youth Bulge$_t$×Urbanization$_t$	0.000567*	(1.76)	0.000125*	(1.76)	0.000259*	(1.75)
log(Pop$_t$)	0.0745	(0.76)	-0.0456**	(-2.09)	0.0129	(0.24)
Polity2$_{t-1}$	-0.00435	(-1.32)	0.0000411	(0.04)	-0.00479****	(-2.93)
Polity2$^2_{t-1}$	-0.00165***	(-2.68)	-0.000294**	(-2.07)	-0.000741***	(-2.66)
log(GDP$_{t-1}$)	0.000707	(0.01)	0.0150	(1.62)	-0.00978	(-0.27)
N	1042		1333		1037	
R^2	0.451		0.278		0.321	
adj. R^2	0.359		0.168		0.207	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.005$, ***** $p < 0.001$

Interestingly, the level of urbanization, given by the % population living in urban areas, results to be important in accounting for some larger scale events like revolutions and coups d'état. In particular, a greater level of urbanization seems to reduce the likelihood of experiencing a revolution or a coup d'état. This is in line with Lipset's *modernization hypothesis*, according to which as countries develop in terms of wealth, urbanization and education, they become more democratic and stable. However the presence of large young cohorts reduces the impact of urbanization, giving support to the idea that also the interaction between urbanization and demographics affects political stability. For these forms of violence that have a greater impact on the political conditions of a country, the term associated with the level of democracy squared is again significant, meaning that more democratic and more autocratic political sys-

tems are less exposed to risks of revolutions and coups d'état, while newly established democracies and liberalized autocracies are more vulnerable.

7.4 Robustness checks

As a first robustness check, we perform the same analysis with 3-year and 10-year panels. The results obtained are similar to the ones presented above, especially when we employ the standard deviations of the two democracy measures as proxies of political instability. The outcome of the regressions using the indicators available in the CNTS Data Archive as dependent variables is more subject to changes when we use different time windows.

Secondly, we repeat the exercise using the Freedom House index as a measure of the level of democracy and we get the same results. Thirdly, we employ the ratio of the amount of young people aged 15-24 over total population aged 15+, which corresponds to the variable used in Urdal (2006), as a measure for the dimension of the youth bulge and surprisingly, most of our results vanish. This suggests that, for our proxies of political instability, it is important also to account for the impact of those aged 25-29, who seem to be particularly violent.

By including time fixed effects in our regressions, we have implicitly assumed common trends and shocks across countries. As a final robustness check, we relax this assumption and we allow for country-specific linear time trends, which account for unobserved time-varying country-specific effects. Although some of variables included in the regressions reported above are not significant anymore and some new variables appear to be significant, the results point again to a non-linear effect of the young cohorts size on the propensity of a political regime to change.

8 Concluding remarks

The results of the analysis performed can be summarized in few points:

1. The concept of political instability is multidimensional. A broad distinction we

can make separates politically motivated violence from the propensity of a political regime to change. Contrary to what intuition may suggest, youth bulges are more easily linked to the latter nature of political instability.

2. An exceptional size of the 15-29 cohorts represents a threat to the political stability of a country when it exceeds a threshold value of 28%. This finding seems to contradict the hypothesis that youth bulges are associated with higher violence as young people are more aggressive because of higher levels of hormones in their blood. A more plausible explanation is based on the idea that populations characterized by an extreme concentration in some specific cohorts more likely experience episodes of political instability than more evenly distributed populations. This is due to the fact that people belonging to particularly dense age groups may lack of economic opportunities as they face a greater amount of competitors.

3. The age composition of a population seems to be an important leading indicator of the future level of political instability.

4. Analogous to what Urdal (2006) concludes from his analysis, the hypotheses that greater urbanization and education enhance the impact of youth bulges on political instability, which are typically advanced in the youth bulge literature, do not find a strong support in this data. The interaction effects of the proportion of young people and the levels of education and urbanization significantly account for the level of political instability in few cases. They appear to play a role when we examine some specific forms of political violence such as riots, revolutions and coups d'état.

5. Liberalized autocracies and newly established democracies are less stable than stark autocracies and long-standing democracies.

6. The level of wealth, measured by GDP per capita, does not affect the political stability of a country.

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